

TC-H4700

SERVICE MANUAL

*AEP Model
E Model
Australian Model
Tourist Model*




This set is the cassette deck section in FH-E858, MHC-4700.

SPECIFICATIONS



Recording system 4-track 2-channel stereo
Frequency response (DOLBY NR OFF)
40 — 13,000 Hz (± 3 dB),
using TYPE I cassette
(Sony HF-S)
40 — 14,000 Hz (± 3 dB),
using TYPE II cassette
40 — 15,000 Hz (± 3 dB),
using
TYPE IV cassette
Wow and flutter 0.1% WRMS $\pm 0.3\%$ (DIN)
Inputs PHONO (phono jacks):
sensitivity 2.5 mV,
impedance 47 kilohms
DAT (phono jacks):
sensitivity 450 mV,
impedance 47 kilohms
VIDEO (phono jacks):
sensitivity 300 mV,
impedance 47 kilohms

Design and specifications subject to change without notice.

- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
"DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	TC-H2700/H3700	
Tape Transport Mechanism Type	DECK A	TCM-190RA13A
	DECK B	TCM-190RB12A

SAFETY-RELATED COMPONENT WARNING!!

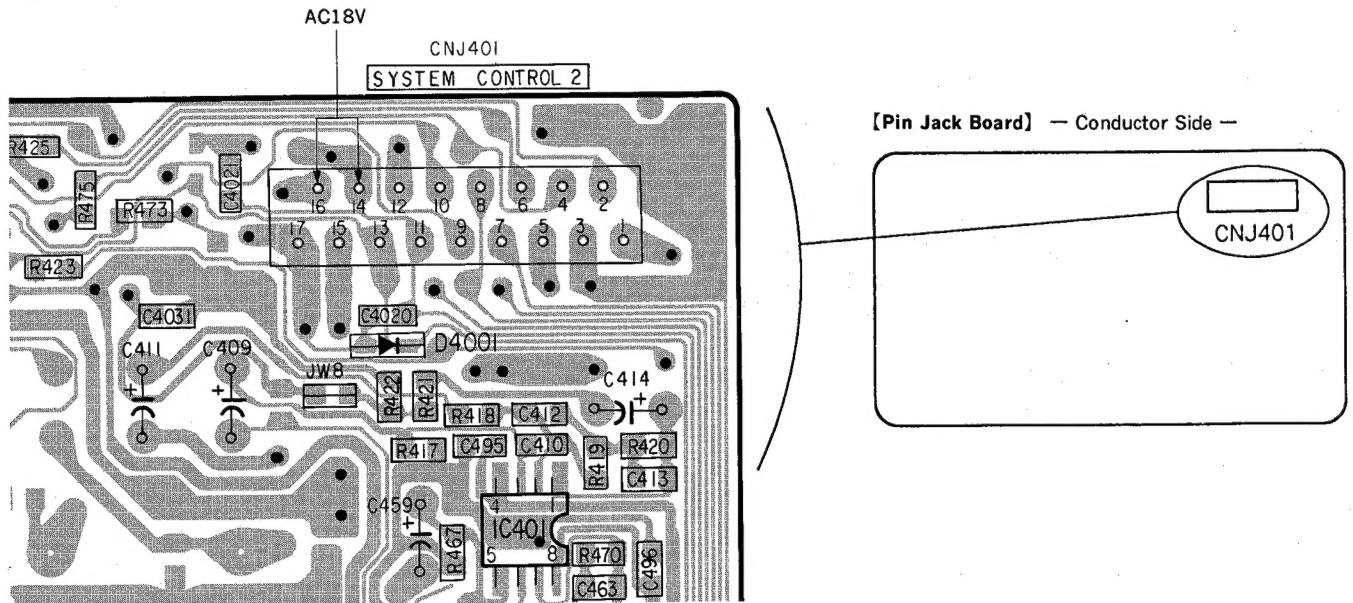
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.



STEREO CASSETTE DECK
SONY®

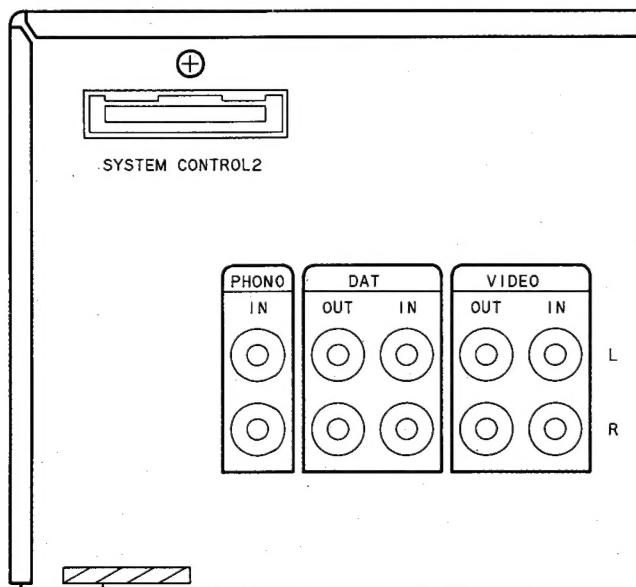
CAUTION WHEN REPAIRING

Normally the power of this set is supplied from the TA-H4700 amplifier connected. When only this set is repaired, connect the power of 18V AC as shown in the figure below.



MODEL IDENTIFICATION

— BACK PANEL —



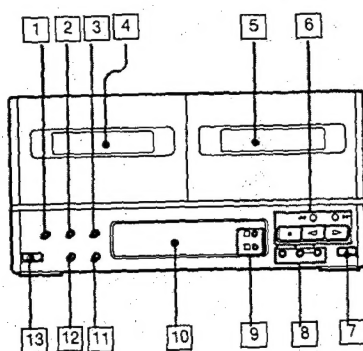
3-374-471-81 (AE) : AEP, E, Australian, Tourist model
 3-374-471-91 (AE4): Germany model

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
1. GENERAL			5-4.	Circuit Boards Location	18
1-1.	Part Identification	3	5-5.	Schematic Diagram —Main Section—	20
2. DISASSEMBLY		4	5-6.	Printed Wiring Boards —Main Section—	25
3. MECHANICAL ADJUSTMENTS		6	5-7.	Schematic Diagram —Pin Jack Section—	29
4. ELECTRICAL ADJUSTMENTS		6	5-8.	Printed Wiring Boards —Pin Jack Section—	33
5. DIAGRAMS			6. EXPLODED VIEWS		
5-1.	IC Pin Description	10	6-1.	Cabinet Section	38
5-2.	Semiconductor Lead Layouts	14	6-2.	Cassette Holder Section	39
5-3.	Block Diagram	15	6-3.	Mechanism deck Section 1	40
			6-4.	Mechanism deck Section 2	41
			7. ELECTRICAL PARTS LIST		42

SECTION 1
GENERAL

1-1. PARTS IDENTIFICATION



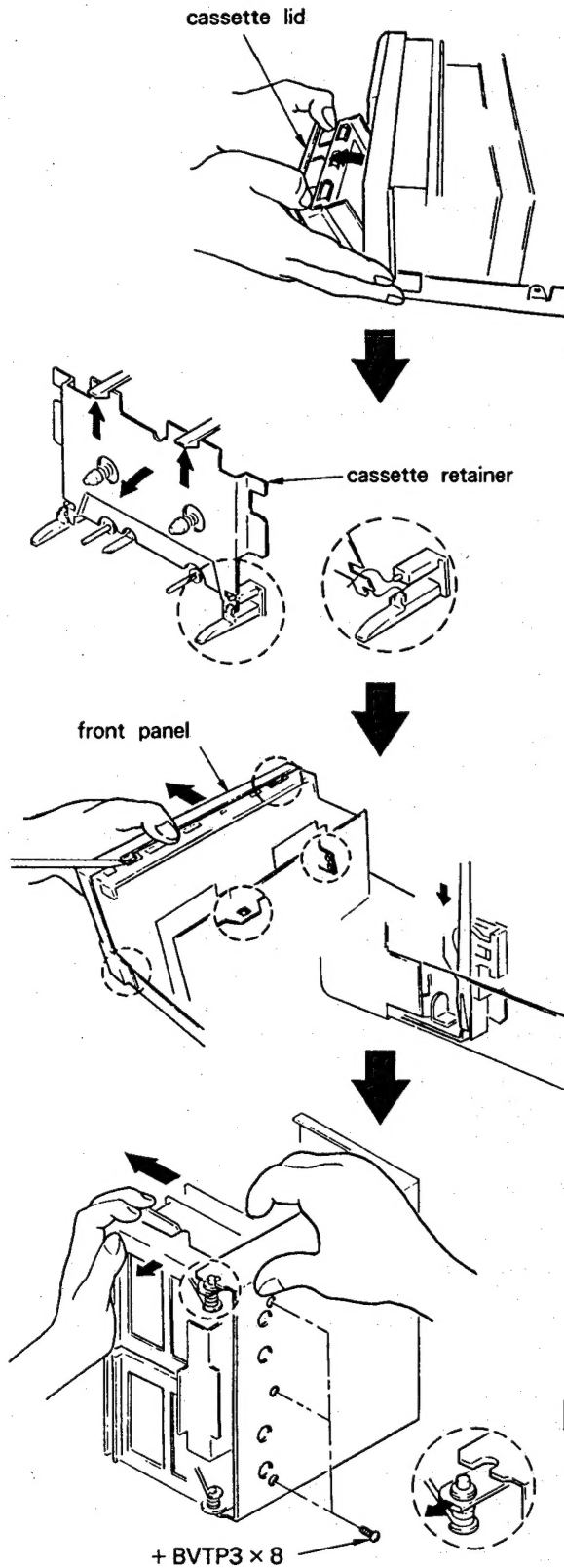
This section is extracted from
instruction manual.

- 1 DUBBING MODE button and indicator 62
- 2 CD SYNCHRO (CD synchronized recording) button and indicator 94 100
- 3 COUNTER RESET button 62
Resets the counter of the cassette deck to "0".
- 4 Cassette holder (Deck A)
- 5 Cassette holder (Deck B)
- 6 Tape operation buttons (for Deck A and B)
AMS ◀▶▶▶ : Fast winding
■ : Stop
▷ : Forward play
◁ : Reverse play
- 7 EJECT button (Deck B)
- 8 Tape operation buttons (for Deck B)
|| : PAUSE
○ : MUTE (Muting)
● : REC (recording)
- 9 DECK A/B selector 62
- 10 Display window
- 11 DIRECTION MODE selector 62 68
- 12 DOLBY NR (Dolby Noise Reduction) switch 64
- 13 EJECT button (Deck A)

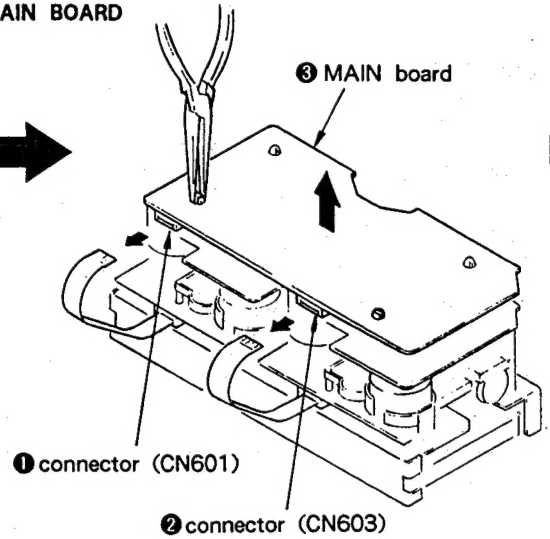
SECTION 2 DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

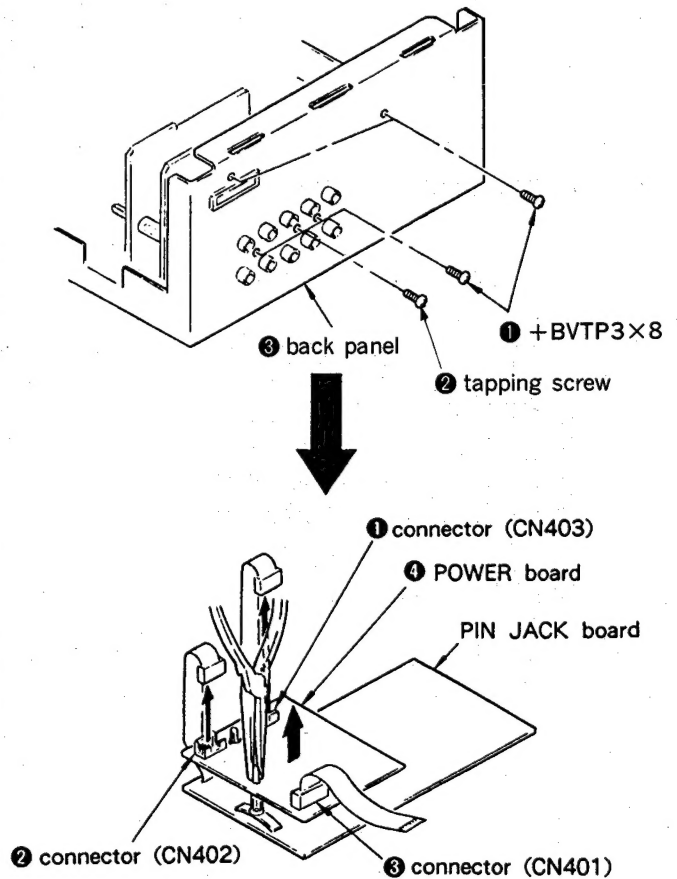
• FRONT PANEL



• MAIN BOARD



• PIN JACK/POWER BOARD



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-soaked swab:
 - record/playback head
 - pinch roller
 - erase head
 - rubber belts
 - capstan
 - idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustment. (Head demagnetizer do not approach for the erase head.)
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

SECTION 4 ELECTRICAL ADJUSTMENTS

PRECAUTION

1. The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
2. The adjustment and measurement should be performed for both L-CH and R-CH.
 - Switch position
 - DOLBY NR switch : OFF

Test Tape

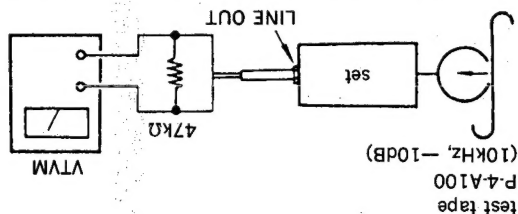
Tape	Contents	Use
P-4-A100	10kHz, -10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

Record/Playback Head Azimuth Adjustment

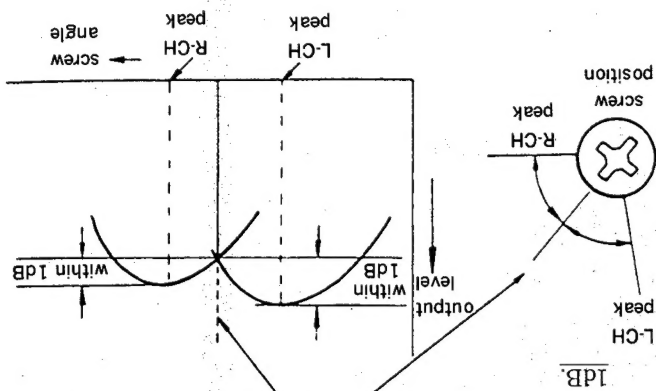
DECK A DECK B

Procedure :

1. Forward Playback Mode



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.

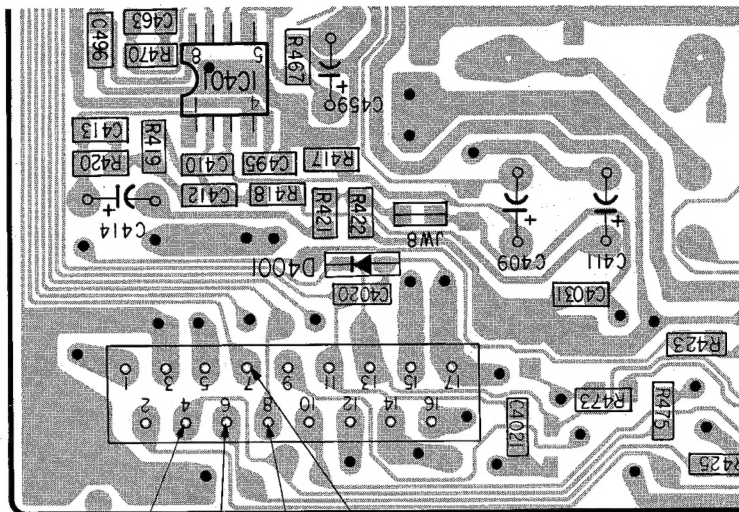


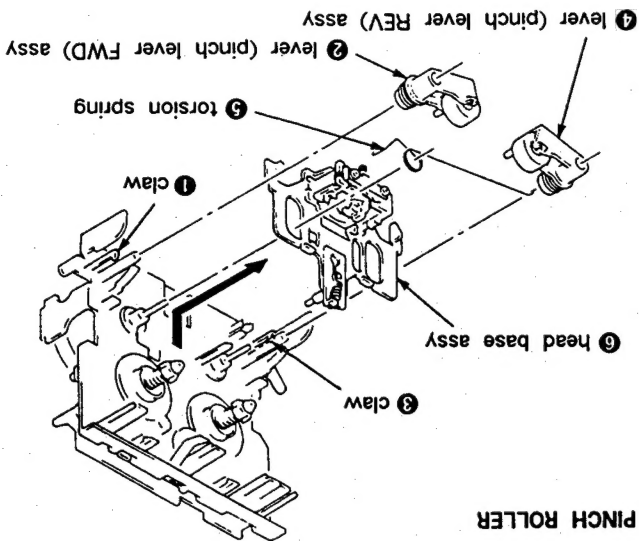
Torque Measurement

Torque meter	Meter reading	Forward	Reverse
CQ-102C	35 to 60g • cm (0.49 to 0.83 oz • inch)	Forward	Reverse
CQ-102C	2 to 6g • cm (0.03 to 0.08oz • inch)	back tension	Reverse
CQ-102RC	35 to 60g • cm (0.49 to 0.83oz • inch)	Reverse	Reverse
CQ-102RC	2 to 6g • cm (0.03 to 0.08oz • inch)	Reverse	back tension
CQ-201B	70 to 110g • cm (0.98 to 1.52 oz • inch)	Forward,	Reverse

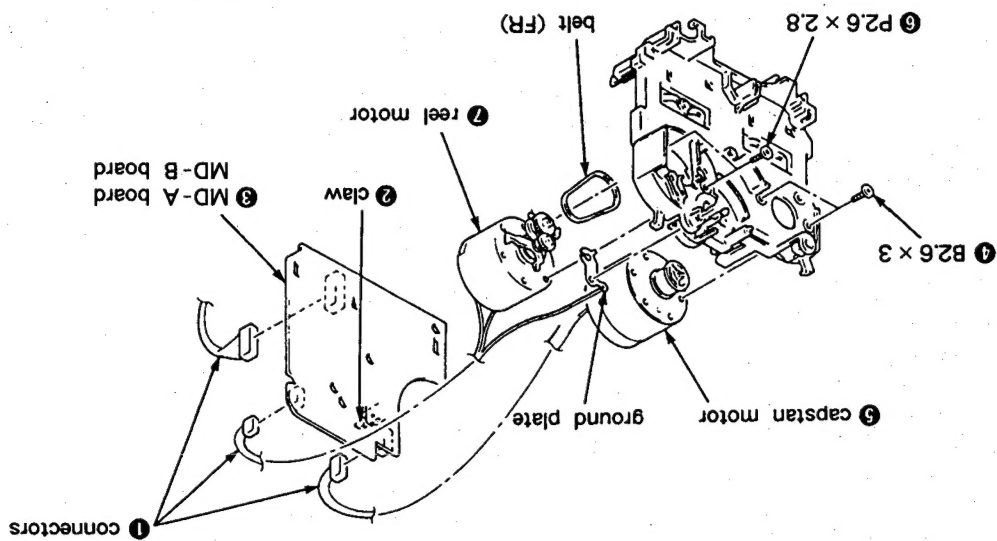
LINE IN/OUT Terminal (CNJ401)

INPUT L-CH
INPUT R-CH
OUTPUT L-CH
OUTPUT R-CH



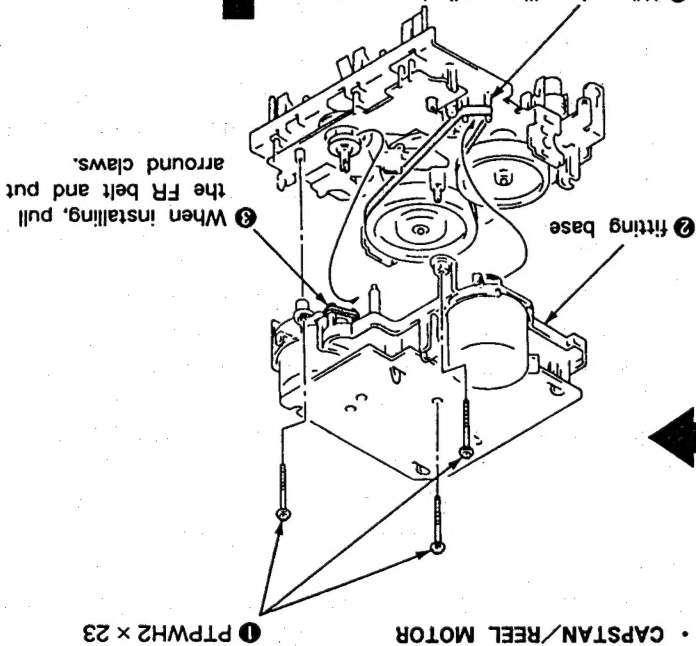


• HEAD, PINCH ROLLER

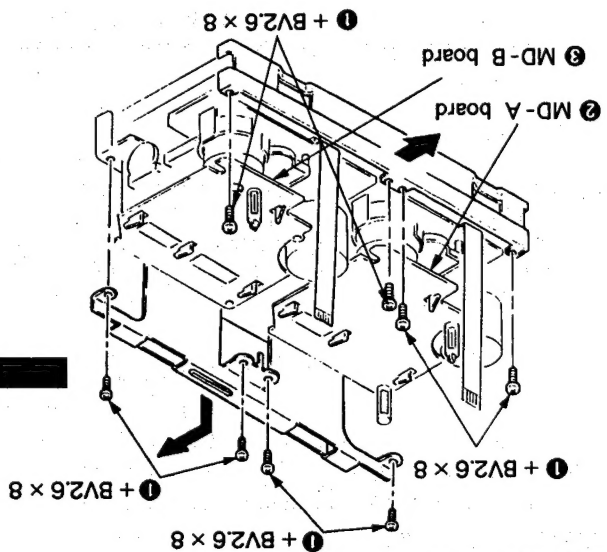


④ When installing, pull the capstan belt and put around claws.

⑤ When installing, pull the FR belt and put around claws.



• CAPSTAN/REEL MOTOR



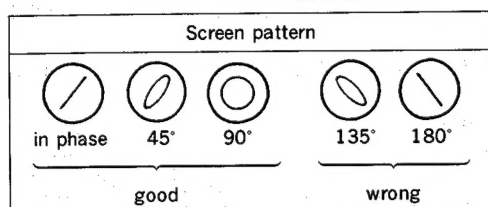
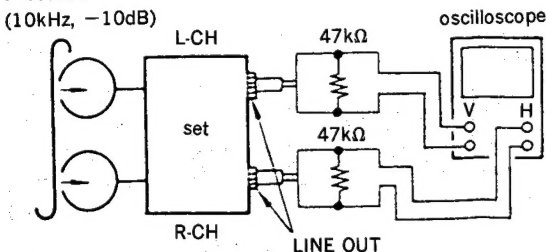
• MECHANISM DECK

3. Playback Mode

test tape

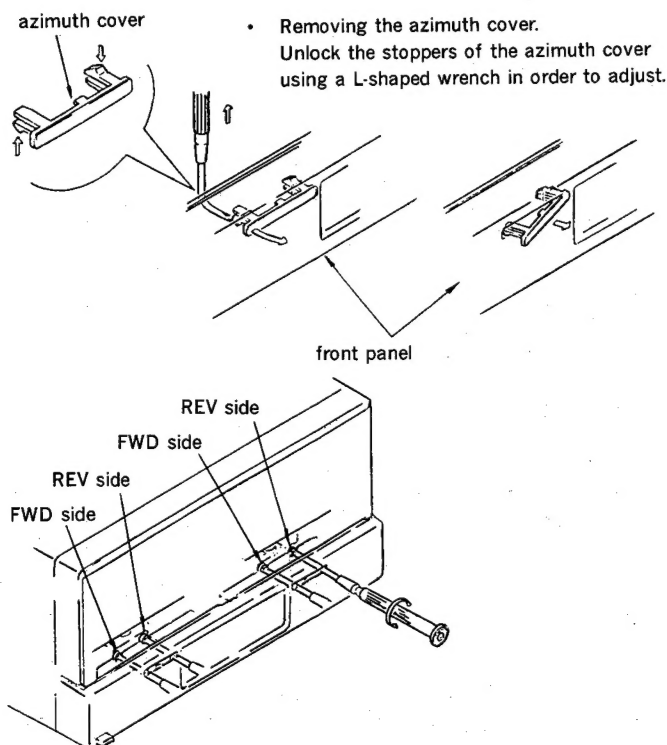
P-4-A100

(10kHz, -10dB)



4. Change the reverse playback mode and repeat the steps 1 to 3.
5. After the adjustment, lock the adjustment screw with suitable locking compound.

Adjustment Location : —record/playback head—

Tape Speed Adjustment **DECK A** **DECK B**

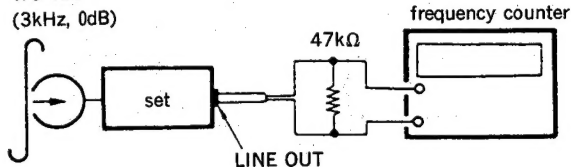
Procedure :

—Forward Playback Mode—

test tape

WS-48B

(3kHz, 0dB)



Perform high speed adjustment before normal speed adjustment.

(High speed adjustment)

1. Short TP601 (main board) when the power is OFF.
2. Turn on the power and put the deck A into the FWD mode.
3. Connect a 150Ω resistor to both the terminals of TP6001 (main board). (The set enters into high speed playback mode.)
4. Adjust RV72A (H) of the deck A so that a reading of the frequency counter meets the adjustment value.
5. Adjust the RV72B (H) of deck B performing steps 2 to 5 as deck A.
6. After the adjustment is completed, remove the short of TP601 and 150Ω resistor of TP6001.

(Normal speed adjustment)

1. Put the set into the FWD playback mode.
2. At this time, adjust RV71A (L) of the deck A and RV71B (L) of the deck B so that a reading of the frequency counter meets the adjustment value.

Adjustment Limits :

Speed	Frequency Counter Reading
High	$6,000 \pm 20\text{Hz}$
Normal	$3,000 \pm 10\text{Hz}$

Frequency difference between the beginning and the end of the tape should be within 3%.

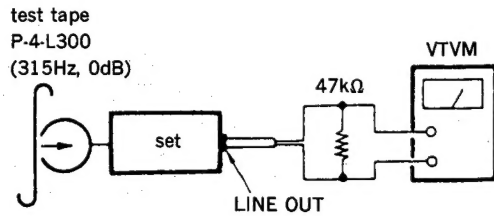
Frequency difference between deck A and deck B the beginning of the tape should be within 1.5%.

Adjustment Location : MD-A Board
MD-B HX PRO Board

Playback Level Adjustment	DECK A	DECK B
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Procedure :

—Forward Playback Mode—



Adjust deck A : RV11A (L-CH), RV21A (R-CH) and deck B : RV11B (L-CH), RV21B (R-CH) so that the VTVM reading becomes the adjustment limits below.

Adjustment Limits :

LINE OUT level: $-7.5 \pm 0.5\text{dB}$ (0.31 to 0.35V)

Level Difference between Channels: within 0.5dB

Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

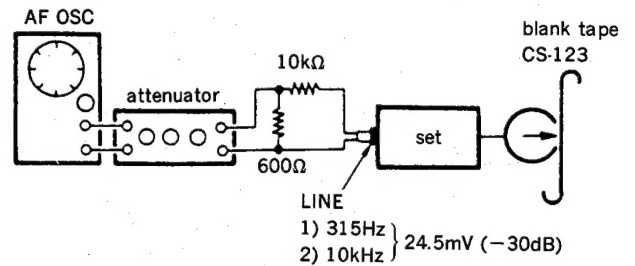
Adjustment Location : MD-A Board
MD-B HX PRO Board

Tape Speed/playback Level Adjustment

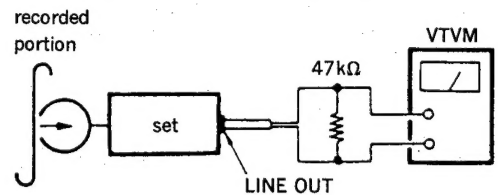
Record Bias Adjustment **DECK B**

Procedure :

- ### 1. Record Mode



- ## 2. Playback Mode



Playback the signal recorded in step 1.

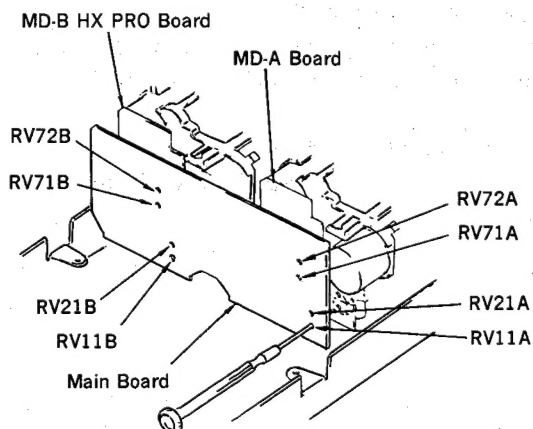
Confirm that the 10kHz playback output is $0 \pm 0.5\text{dB}$ (0.732 to 0.821V) relative to the 315Hz output. if necessary, adjust RV81 (L-CH), RV91 (R-CH) and repeat the steps given above.

Adjustment Location : MD-B HX PRO Board

Screwdriver to adjust the MD block



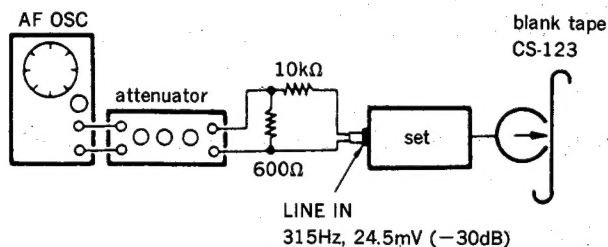
The MD block adjustment can be performed by inserting a screwdriver of which axis length (not including the shaft) is 35 mm or more through the rear side of the main board.



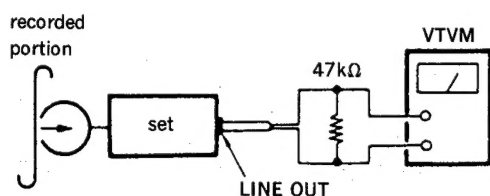
Record Level Adjustment **DECK B**

Procedure :

1. Record Mode



2. Playback Mode



Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat steps 1 and 2.

Adjustment Limits :

LINE OUT level : $-27.5 \pm 0.5\text{dB}$ (31 to 35mV)

Adjustment Location : main board

Adjustment Location :

【MD-A Board】 —Component Side—

Tape Speed Adjustment

{ RV72A (H)
RV71A (L)

Playback Level Adjustment

{ RV21A (R-CH)
RV11A (L-CH)

【MD-B HX PRO Board】 —Component Side—

Record Bias Adjustment

{ RV81 (L-CH)
RV91 (R-CH)

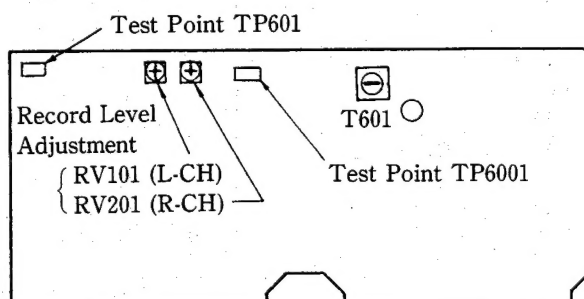
Tape Speed Adjustment

{ RV72B (H)
RV71B (L)

Playback Level Adjustment

{ RV21B (R-CH)
RV11B (L-CH)

【Main Board】 —Component Side—



SECTION 5 DIAGRAMS

5-1. IC PIN DESCRIPTION

IC351 display microprocessor HD614023-FA93

Fluorescent indicator tube is activated by receiving data from IC601 (system controller).

Pin No.	Pin Name	I/O	Description
1—11	S10—S0	O	FL indicator tube (FL351) segment output
12			Not used. (+5.6V)
13	VDISP	—	Power supply for activating the FL indicator tube (−20V)
14—15			Not used (GND)
16	SYNC	I	Interrupt input. Data transmission from IC601 (system controller) is checked.
17	INT	I	Not used. (GND)
18—25			Not used. (GND)
26	V _{CC}	—	Power supply terminal (+5.6V)
27	CLK	I	Data transmission clock input from IC601 (system controller)
28	DATA	I	Serial data input from IC601 (system controller)
29	SYNC	I	Sync signal input which indicates the first byte of data sent from IC601 (system controller)
30		—	Not used. (GND)
31	KEY A	O	LED (D303) light output in the deck A.
32	KEY B	O	LED (D304) light output in the deck B.
33	HIGH DUB	O	LED (D301) light output in the high speed dubbing mode.
34	NORM DUB	O	LED (D301) light output in the normal speed dubbing mode.
35	CD SYNC	O	LED (D302) light output in the CD synchro mode.
36—38			Not used. (GND)
39	FLCHECK	I	All the FL indicator tubes are lit when this port is set to "L". (Normally +5.6V)
40—42			Not used. (GND)
43	RESET	I	Reset input from IC601 (system controller). "L" : Reset.
44	TEST	I	Not used. (+5.6V)
45	OSC1	I	Clock input (4.19MHz)
46	OSC2	O	Clock output
47	GND	—	Power supply terminal (GND)
48—50			Not used. (GND)
51			Not used. (Pull-up)
52—57	G0—G6	O	FL indicator tube (FL351) grid output
58—61			Not used. (+5.6V)
62—64	S11—S13	O	FL indicator tube (FL351) segment output

IC406 selector controller M50760-315FP

AV output is switched with the audio pass signal sent from the amplifier (TA-H4700).

Pin No.	Pin Name	I/O	Description
1	D3	I	Model selection input port. Connected to GND.
2	A0	O	Audio IN switch (IC403 and IC404) control output port.
3			Not used.
4	A1	O	Audio IN switch (IC403 and IC404) control output port.
5	CNV _{SS}	—	Power supply terminal (GND)
6	V _{SS}	—	Power supply terminal (GND)
7	A2	O	Audio IN switch (IC403 and IC404) control output port.
8	B0	O	Audio OUT switch (IC405) control output port.
9	B1	O	Audio OUT switch (IC405) control output port.
10			Not used.
11, 12			Not used.
13, 14			Not used. (GND)
15			Not used.
16	RESET	I	Reset input. "L" : Reset
17	XOUT	O	Clock output.
18	XIN	I	Clock input.
19	S	I	Serial data input (audio bus)
20	D2	I	Serial data input (audio bus)
21	S1	I	Model selection input port. Connected to GND.
22			Not used.
23	VD0	I	Model selection input port. Connected to GND.
24	V _{DD}	—	Power supply terminal (+5V)

IC601 system controller M50944-128FP

The system is wholly controlled by communication between IC351 (display microprocessor) and IC602 (mechanism controller).

Pin No.	Pin Name	I/O	Description
1	KEY2	I	Not used. (GND)
2	KEY1	I	Not used. (GND)
3	SYNC	O	Syncro signal input which indicates the first byte of data sent to IC351 (display microprocessor).
4	FL-SCK	O	Data transmission clock output to IC351 (display microprocessor).
5	FL-SO	O	Serial data output to IC351 (display microprocessor).
6	AU-BUS	O	Audio pass output.
7	AU-BUS	I	Audio pass input (negative edge).
8	POWER-IN	I	Power-off detection input. "L": Power OFF.
9	PB-SELECT	O	Deck A/B switch output in the playback mode. "L": deck B, "H": deck A.
10	AMS-SELECT	O	AMS amplifier input switch output
11	MD-REQ	I	Data request input from IC602 (mechanism controller)
12	MD-SCLK	O	Data transmission clock output to IC602 (mechanism controller)
13	MD-SO	O	Serial data output to IC602 (mechanism controller)
14	MD-SI	I	Serial data input from IC602 (mechanism controller)
15		O	Not used. (GND)
16	RESET (MD)	O	IC602 (mechanism controller) reset signal output.
17	AU-BUS	I	Audio bus input (positive-edge)
18	RESET (DSP)	O	IC351 (display microprocessor) reset signal output.
19	GND	—	Power supply terminal. (GND)
20	RESET	I	System reset input. "L": Reset.
21	X-IN	I	Clock input (4MHz)
22	X-OUT	O	Clock output
23	XC-IN	I	Not used. (GND)
24	XC-OUT	O	Not used. (open)
25	VSS	—	Power supply terminal (GND)
26	N. C.		Not used. (open)
27	TEST	I	Electrical adjustment test mode setting input This set enters into the test mode when the power is on and it is set to "L". * 1
28	VAR SELECT	I	Not used. (pull-up)
29	METAL (B)	I	Metal switch (S83) input for deck B. "H": Metal.
30	70 μ (B)	I	Chrome switch (S82) input for deck B. "L": Normal.
31	PPOWER-ON	O	Not used. (open)
32—35			Not used. (GND)
36	70 μ (A)	I	Chrome switch (S83) input for deck A. "L": Normal.
37	AMS IN	I	Signal input from the AMS amplifier. "H": Detected, "L": Not detected.
38	N. C.		Not used. (GND)
39			Not used. (GND)
40	EQ-HIGH	O	REC equalizer characteristic switch output "H": High speed, "L": Normal speed.
41	BIAS FADE	O	Not used. (GND)
42	BIAS (B)	O	Bias ON/OFF switch output. "H": OFF, "L": ON.
43	TYPE II (B)	O	Not used. (GND)
44	TYPE I (B)	O	Not used. (GND)
45	R.MUTE (B)	O	REC mute control output. "L": Mute ON, "H": Mute OFF.
46	RELAY (B)	O	Mechanism deck head switch control output. "L": ON.
47	DOLBY B	O	Dolby B/C switch control output. "L": Dolby C, "H": Dolby B.
48	DOLBY ON	O	Dolby ON/OFF switch control output. "L": ON, "H": OFF.
49	REC/PB	O	Dolby amplifier REC/PB switch output. "L": REC, "H": PB.
50			Not used. (open)
51	PB 70 μ	O	Playback equalizer characteristic switch output. "H": normal, "L": chrome/metal.
52	AMS/BS	O	Not used.
53	PASS	O	PASS amplifier switch output for LINE OUT. "L": PASS amplifier, "H": Through.

Pin No.	Pin Name	I/O	Description
54	LINE-MUTE	O	Line mute control output. "L": MUTE OFF, "H": MUTE ON
55	AVCC	—	Power supply terminal. (+5V)
56	VCC	—	Power supply terminal. (+5V)
57	AVSS	—	Power supply terminal (GND)
58	V.REF	I	Reference voltage input for A/D input port (+5V)
59	METER (R)	I	Level meter signal input (R-CH)
60	METER (L)	I	Level meter signal input (L-CH)
61	VOL DATA	I	Not used. (GND)
62	KEY5	I	Not used. (GND)
63	KEY4	I	Key input. (analog) * 2
64	KEY3	I	Key input. (analog) * 2

* 1 Test mode

When the power is on and pin ②⑦ is set to "L" Short TP601. (main board), the set enters the electrical adjustment test mode and the followings can be available.

(1) High speed playback

When deck A or B is in the playback mode and a 150Ω resistor is connected to both the terminals of TP6001 (main board), the set can be entered the high speed playback mode.

(2) Source monitor

Recording signals can be monitored through the LINE OUT terminal (see page 6.) because the line short is removed in recording.

(3) Recording memory

Recording memory is set to ON when the tape counter is reset at the record start point.

(4) Mode display

The counter displays as shown in the figure A when the counter mode is set to the deck A and the deck A button of deck A/B switch is pressed, or when the counter mode is the deck B and the deck B button is pressed.

(5) When this terminal is set back to "H" after it is set to the test mode in "L" of the power-on mode, all the FL indicator tubes are lit.
(The mechanism block continues to operate as before it is set to "H".)

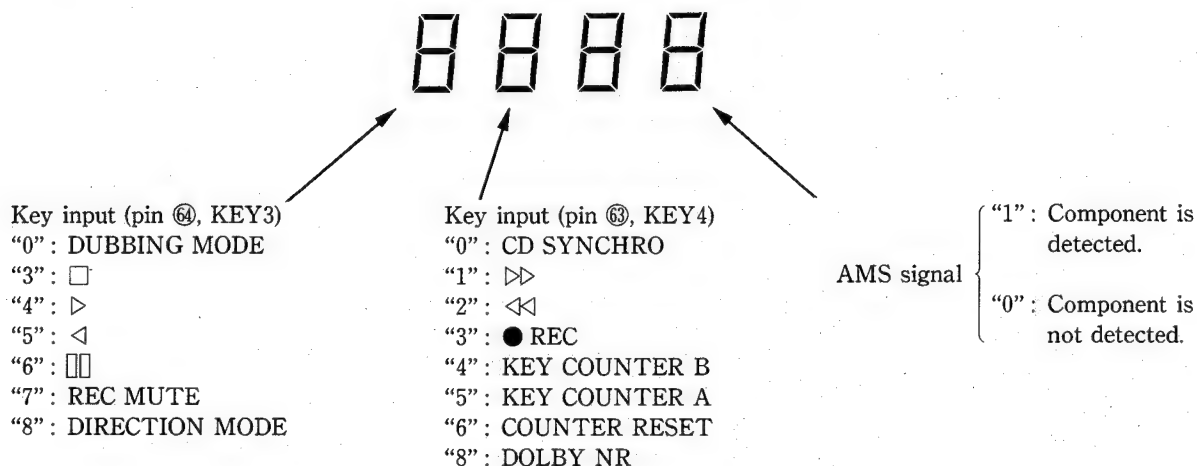


Figure A

* 2 Key input (analog port)

Voltage(V)	0	0.3	0.7	1.2	1.7	2.3	2.8	3.3	4.0
Input port									
Pin ③, KEY4	CD SYNCHRO	◁◁	▷▷	● REC	KEY COUNTER B	KEY COUNTER A	COUNTER RESET		DOLBY NR
Pin ④, KEY3	DUBBING MODE			□	▷	◁	□□ PAUSE	○ REC MUTE	DIRECTION MODE

IC602 mechanism controller M50925-482FP

The mechanism deck is controlled by receiving data from IC601 (system controller).

Pin No.	Pin Name	I/O	Description
1	RESET	I	Reset input from IC601 (system controller). "L": Reset.
2	STOP-A	I	Deck A stop switch (S81) input. "H": Stop.
3	AVSS	—	Power supply terminal (GND)
4	Vref	I	A/D input port reference voltage input.
5	A/D. IN-B	I	Deck B leaf switch input (analog). * 1
6	A/D. IN-A	I	Deck A leaf switch input (analog). * 1
7	AVDD	—	Power supply terminal. (+5V)
8	N. C.		
9	T. REEL-B	I	Not used. (GND)
10	S. REEL-B	I	Deck B supply reel table sensor (IC81)
11	T. REEL-A	I	Not used. (GND)
12	S. REEL-A	I	Deck A supply reel table sensor (IC81)
13, 14	N. C.		
15	CM. ON-A	O	Deck A capstan motor (M102) ON/OFF control output. "L": OFF, "H": ON.
16	CM. ON-B	O	Deck B capstan motor (M102) ON/OFF control output. "L": OFF, "H": ON.
17	GND	—	Power supply terminal. (GND)
18	VSS	—	Power supply terminal. (GND)
19	CM. H/L	O	Capstan motor (M102) speed switch output. "H": High speed, "L": Normal.
20	FWD-B	O	} Deck B reel motor control output. * 2 } The reel motor is activated by combining these three outputs.
21	FF-B	O	
22	TRIG-B	O	
23	FWD-A	O	} Deck A reel motor control output. * 2 } The reel motor is activated by combining these three outputs.
24	FF-A	O	
25	TRIG-A	O	
26	N. C.		
27	S. REQ	O	Data request output to IC601 (system controller).
28	S. CLK	I	Data transmission clock input from IC601 (system controller).
29	S. OUT	O	Serial data output to IC601 (system controller).
30	S. IN	I	Serial data input from IC601 (system controller).
31, 32	N. C.		
33	XOUT	O	Clock output.
34	XIN	I	Clock input.
35	STOP-B	I	Deck B stop switch (S81) input. "H": Stop.
36	VDD	—	Power supply terminal. (+5V)

*** 1 HALF, REC safety tab leaf switch input**

Voltage(V)		1	1.9	2.8	3.9	5
Leaf switch						
Harf	S86	ON				OFF
REC safety tab, side A	S84	OFF	ON	OFF	ON	OFF
REC safety tab, side B	S85	ON	ON	OFF	OFF	OFF
		↑	↑	↑	↑	↑
		REC available for only side B.	REC available for both sides	REC inhibit for both sides A and B.	REC available for only side A.	Tape is not set.

Tape is set.

*** 2 Reel motor drive**

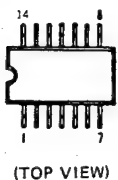
Output port	Mode	FF	TRIG (kick)	STOP	FWD
Pins ②and④	FF	L	H	L	L
Pins ②and⑤	TRIG	H	L	L	H
Pins ②and③	FWD	H	H	L	L

Reel motor drive amplifier output voltage

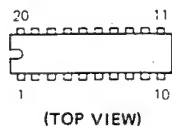
Output	Voltage
TRIG	+6V
FF, REW	-5V
FWD	-3V

5-2. SEMICONDUCTOR LEAD LAYOUTS

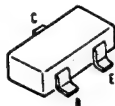
BA3308F
CD4066BCM



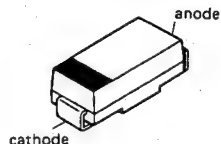
M50760-315FP



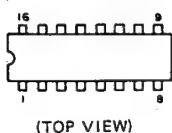
FA1A4M-L33
FA1A4Z-L68
2SA1162-C
2SA1602-F
2SC3395
2SC4154-F



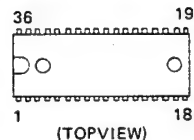
EC10DS2
EC10QS-04



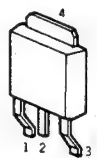
HD14053BFP



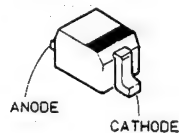
M50925-482FP



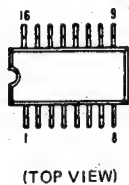
2SA1341



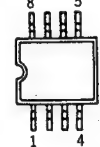
MA8056
MA8091
1SS352



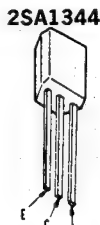
CD4052BCM
CXA1578M
MC14051BF



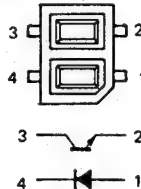
M51953BFP
 μ PC4570G2



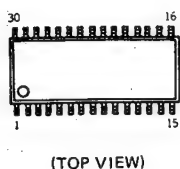
1 BASE
2 COLLECTOR
3 EMITTER
4 COLLECTOR



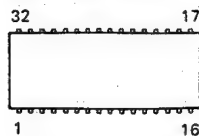
NJL5165K-B



CXA1331M



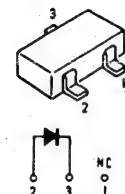
M5218AFP



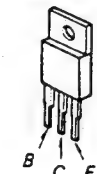
2SA1344



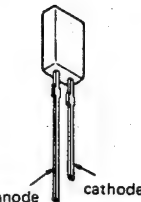
U2M8.2Z



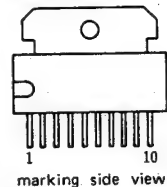
2SB1094-LK
2SD2012



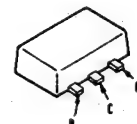
SEL4226R-CD



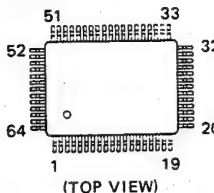
TA7272P



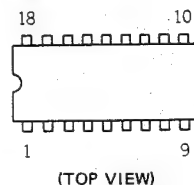
2SB1122-S
2SD1622-S



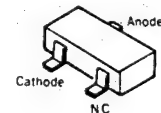
HD614023-FA93
M50944-128FP



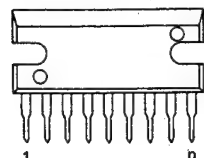
μ PC1297CA



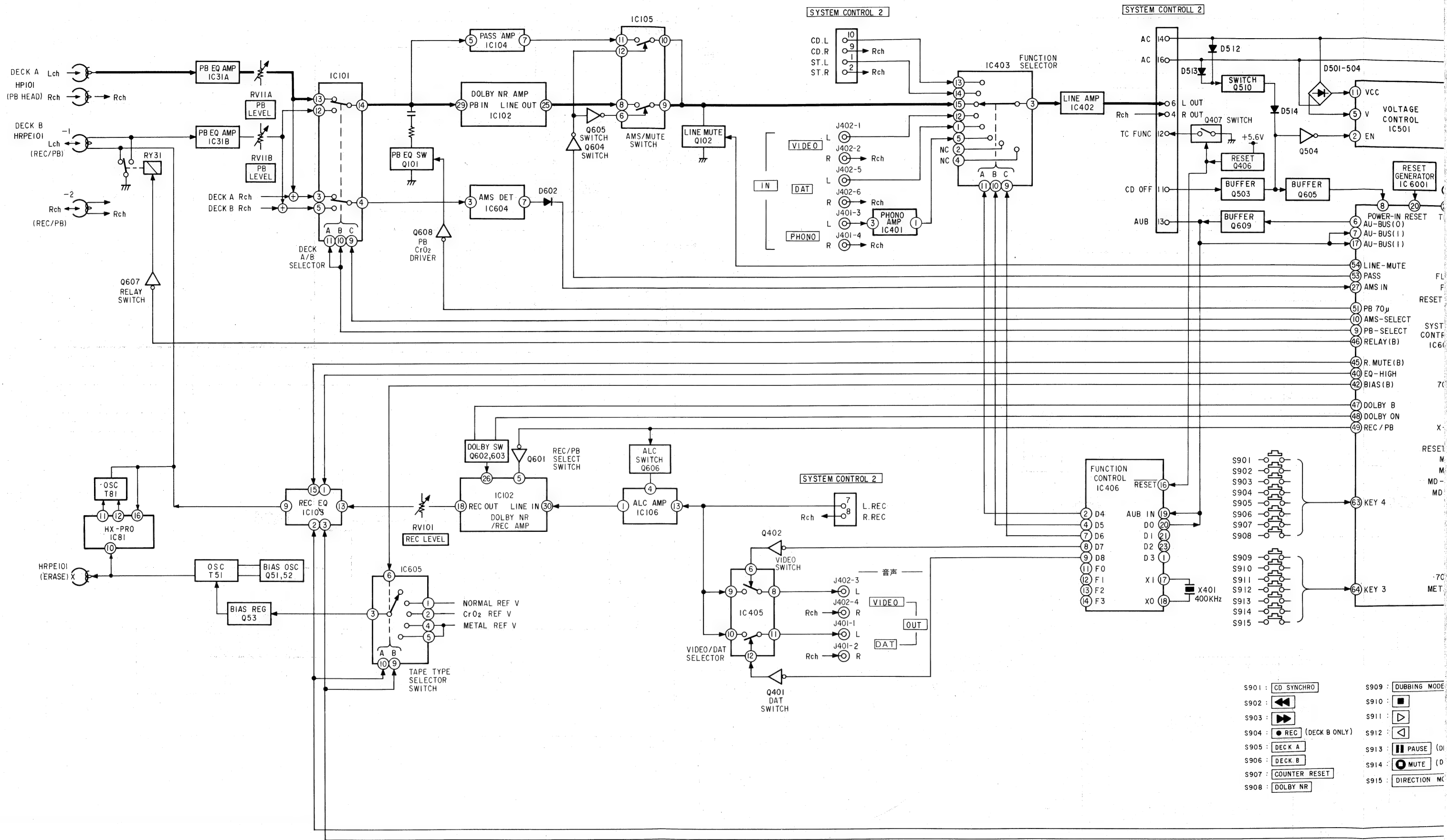
DCA010



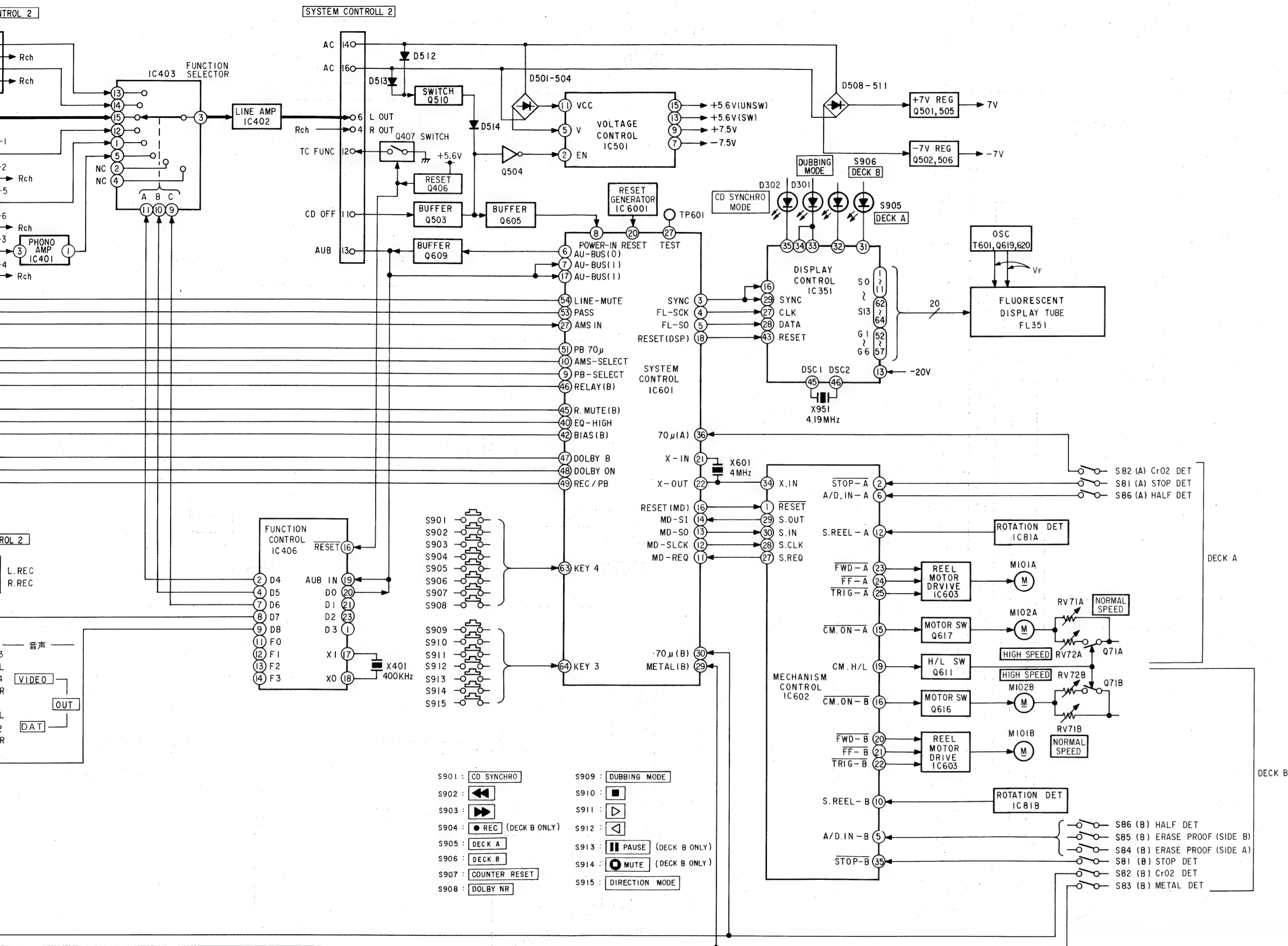
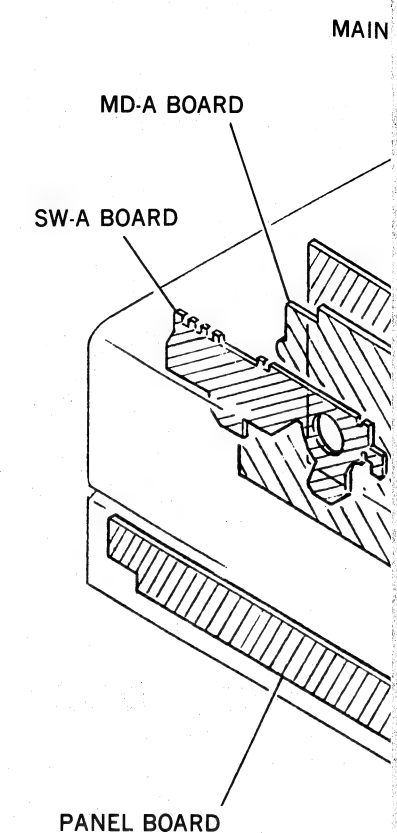
LA5603-S



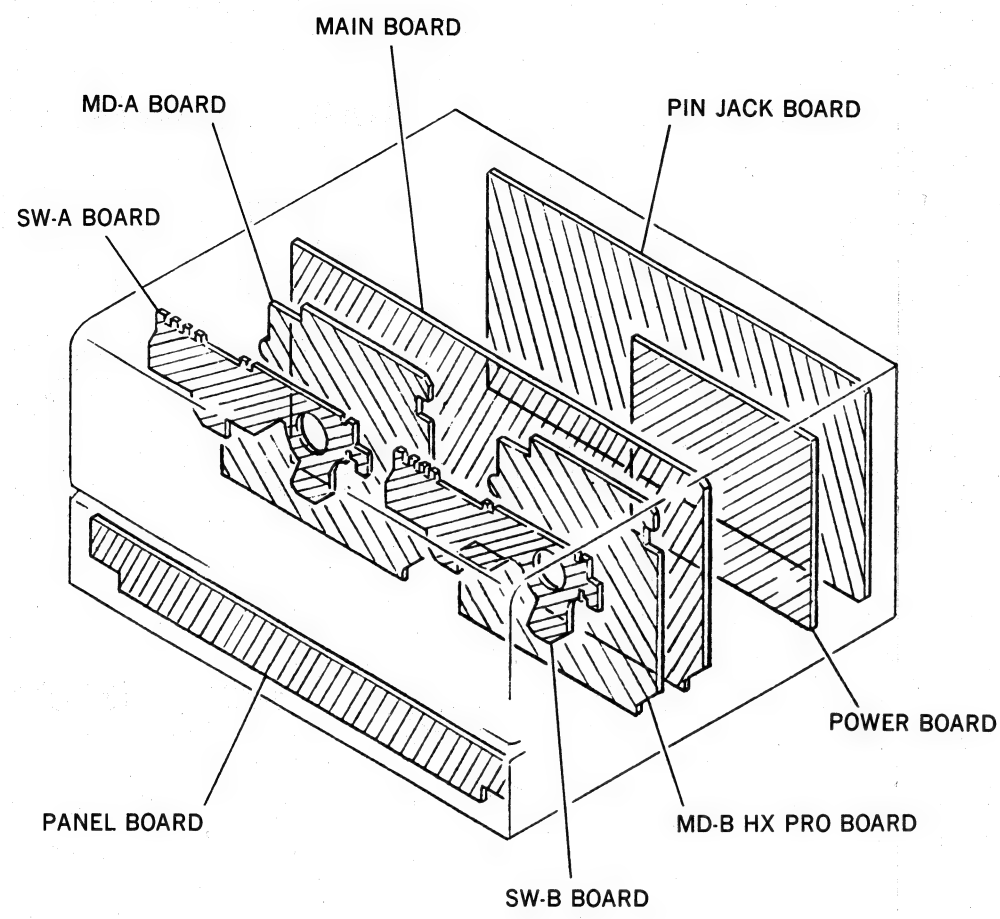
5-3. BLOCK DIAGRAM



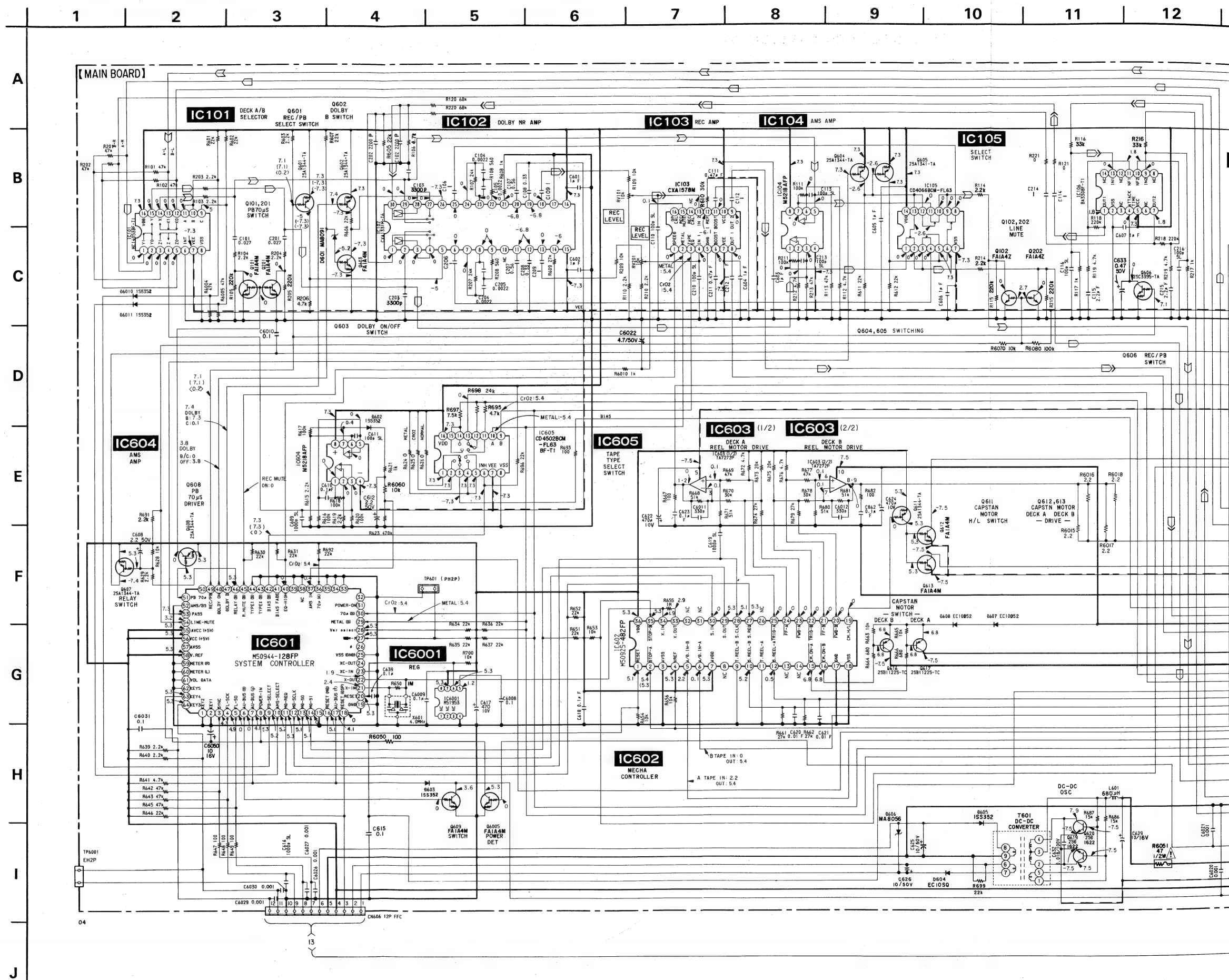
5-4. CIRCUIT BOARDS LOCATION

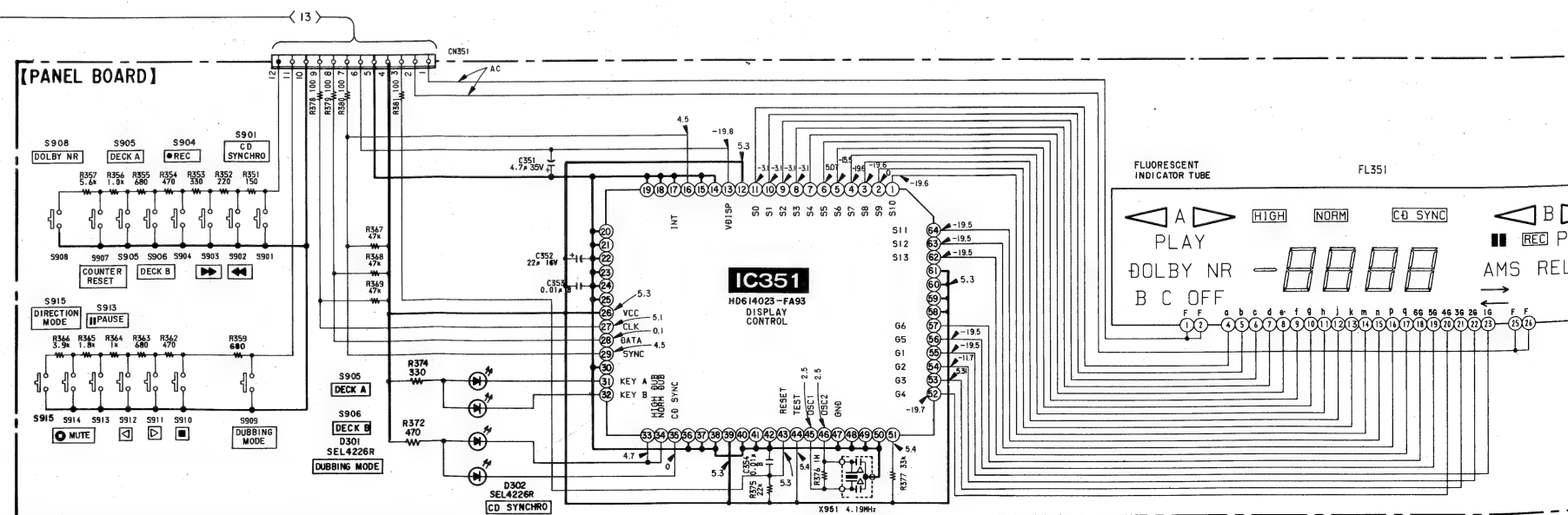
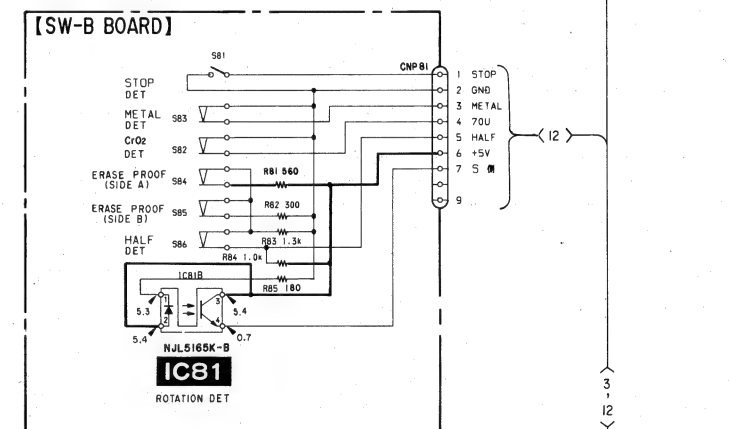
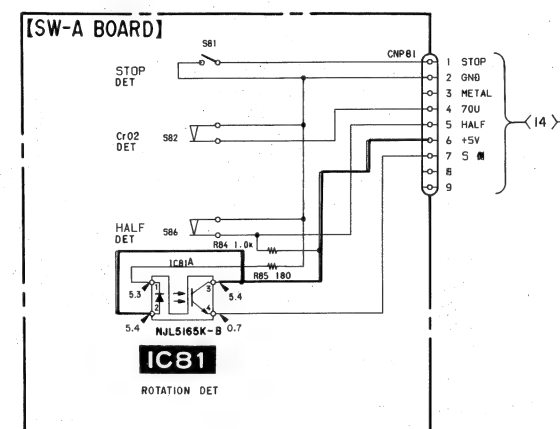
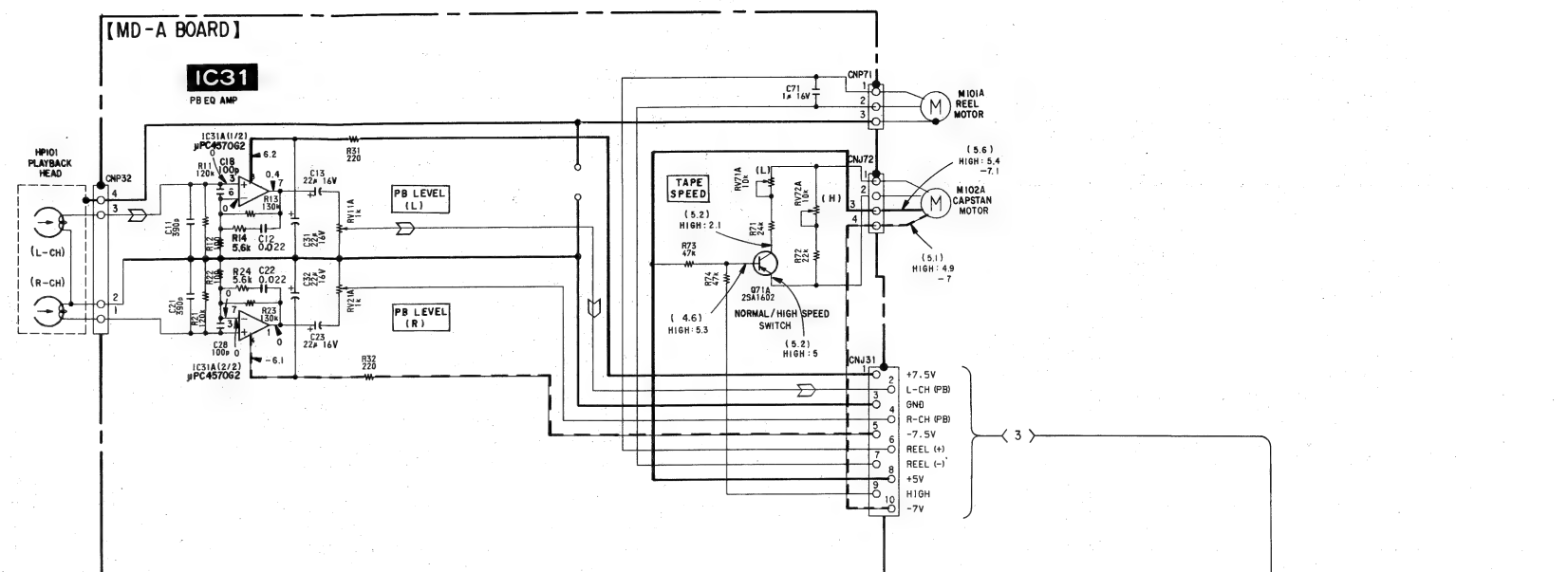
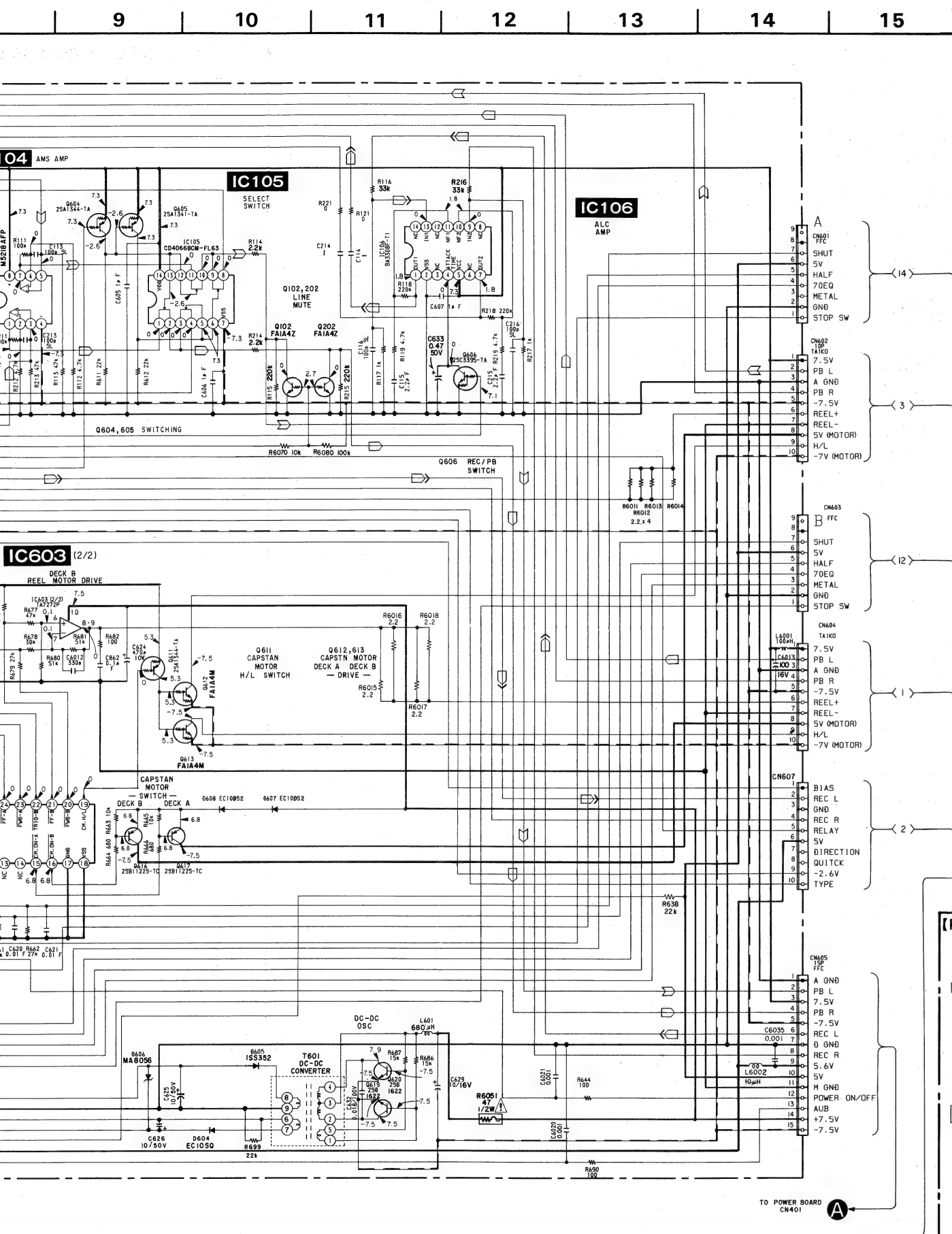


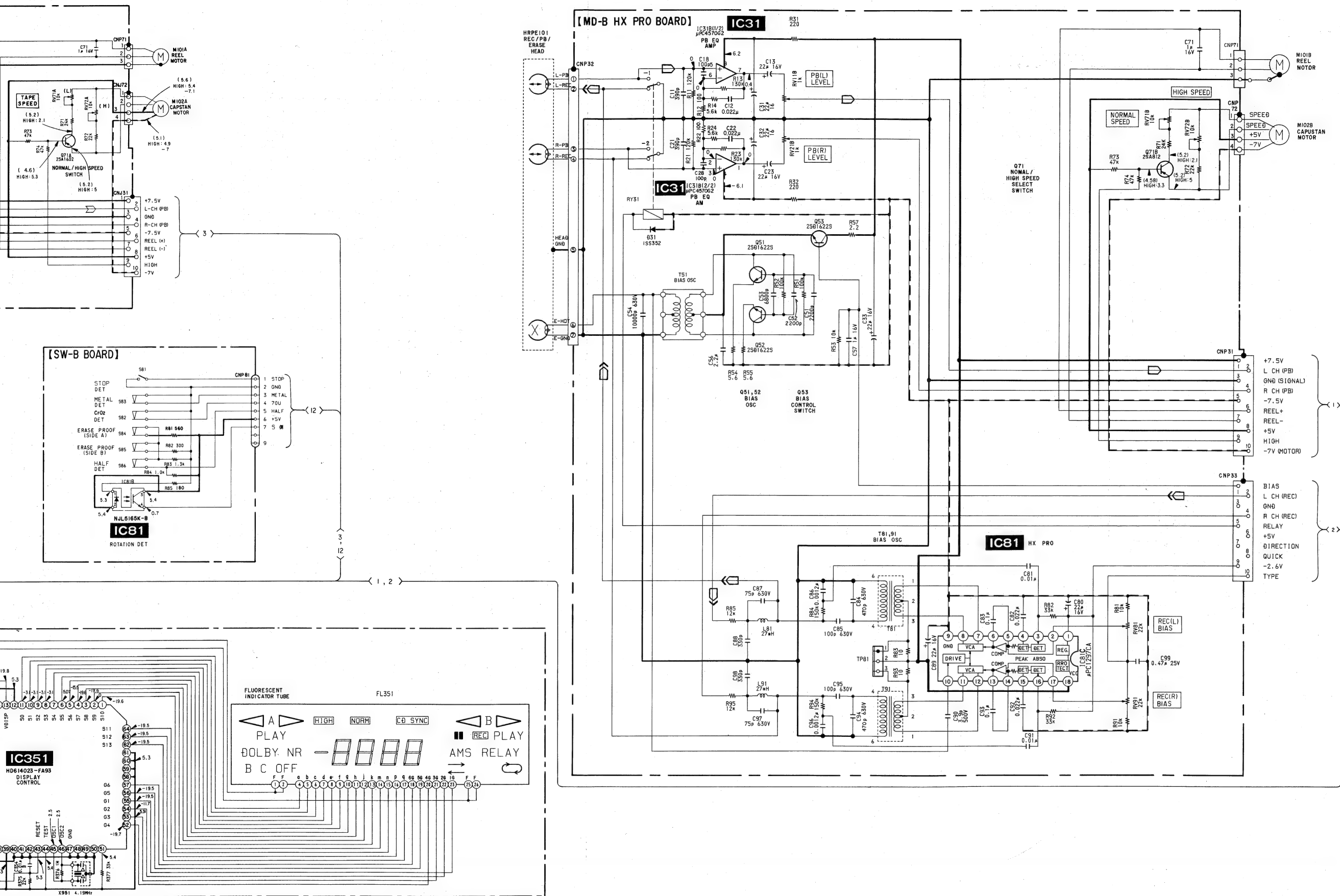
5-4. CIRCUIT BOARDS LOCATION



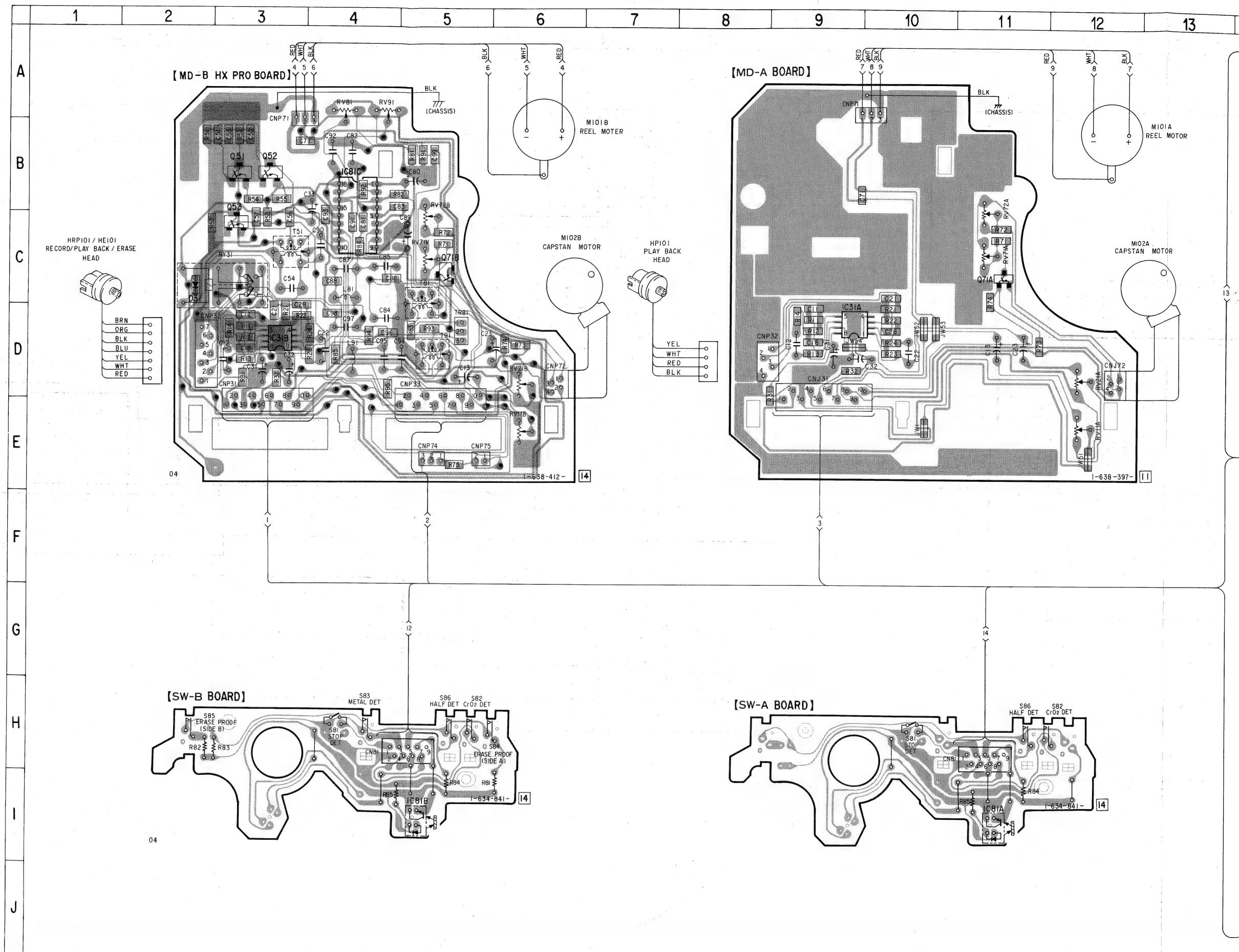
5-5. SCHEMATIC DIAGRAM —MAIN SECTION— • Refer to page 36 for IC Block Diagrams.







5-6. PRINTED WIRING BOARDS —MAIN SECTION— • Refer to page 14 for Semiconductor Lead Layouts.

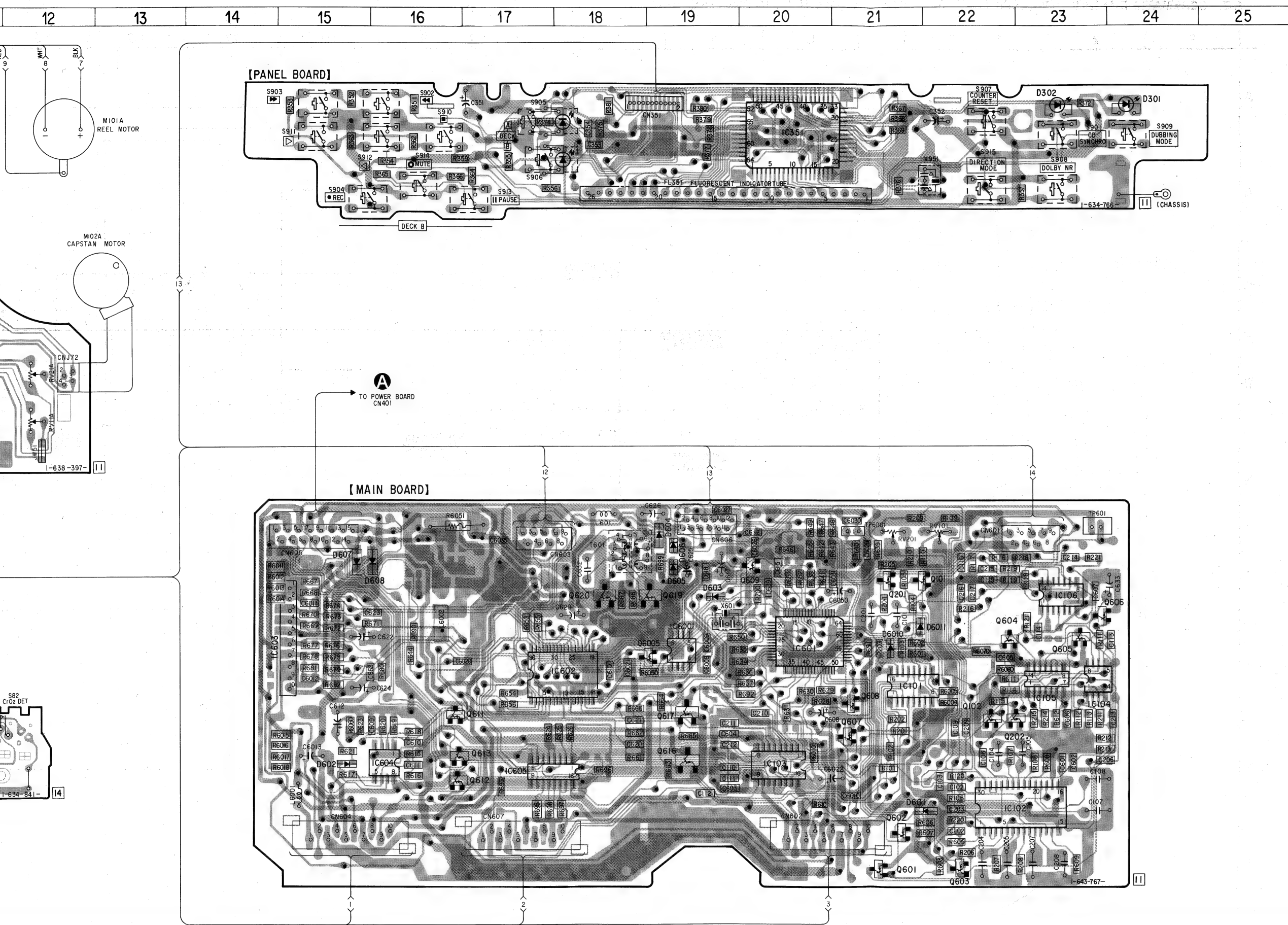


Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- \triangle : internal component.
- \square : nonflammable resistor.

Note: The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

- --- : B+ Line
- --- : B- Line
- \square : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
no mark : STOP
() : PB
< : REC
- Voltages are taken with a VOM (Input Impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 --- : PB (DECK A) --- : REC (DECK B)
 --- : REC (DECK A)



Semiconductor Location

Ref. No.	Location
D31	C-2
D301	B-24
D302	A-23
D601	I-21
D602	I-15
D603	G-19
D604	F-19
D605	F-19
D606	F-19
D607	F-15
D608	F-15
D6010	G-21
D6011	G-21
IC31A	D-9
IC31B	D-3
IC81A	I-11
IC81B	I-5
IC81C	B-4
IC101	H-21
IC102	I-22
IC103	I-20
IC104	H-23
IC105	H-23
IC106	G-23
IC351	B-20
IC601	G-20
IC602	H-17
IC603	G-15
IC604	I-16
IC605	I-17
IC6001	G-19
Q51	B-3
Q52	B-3
Q53	C-3
Q71A	C-11
Q71B	C-5
Q101	G-21
Q102	H-22
Q201	G-21
Q202	H-22
Q601	J-21
Q602	I-21
Q603	J-22
Q604	G-22
Q605	G-23
Q606	G-23
Q607	H-21
Q608	H-21
Q609	F-20
Q611	H-16
Q612	I-16
Q613	H-16
Q616	H-19
Q617	H-19
Q619	G-18
Q620	G-18
Q6005	G-18

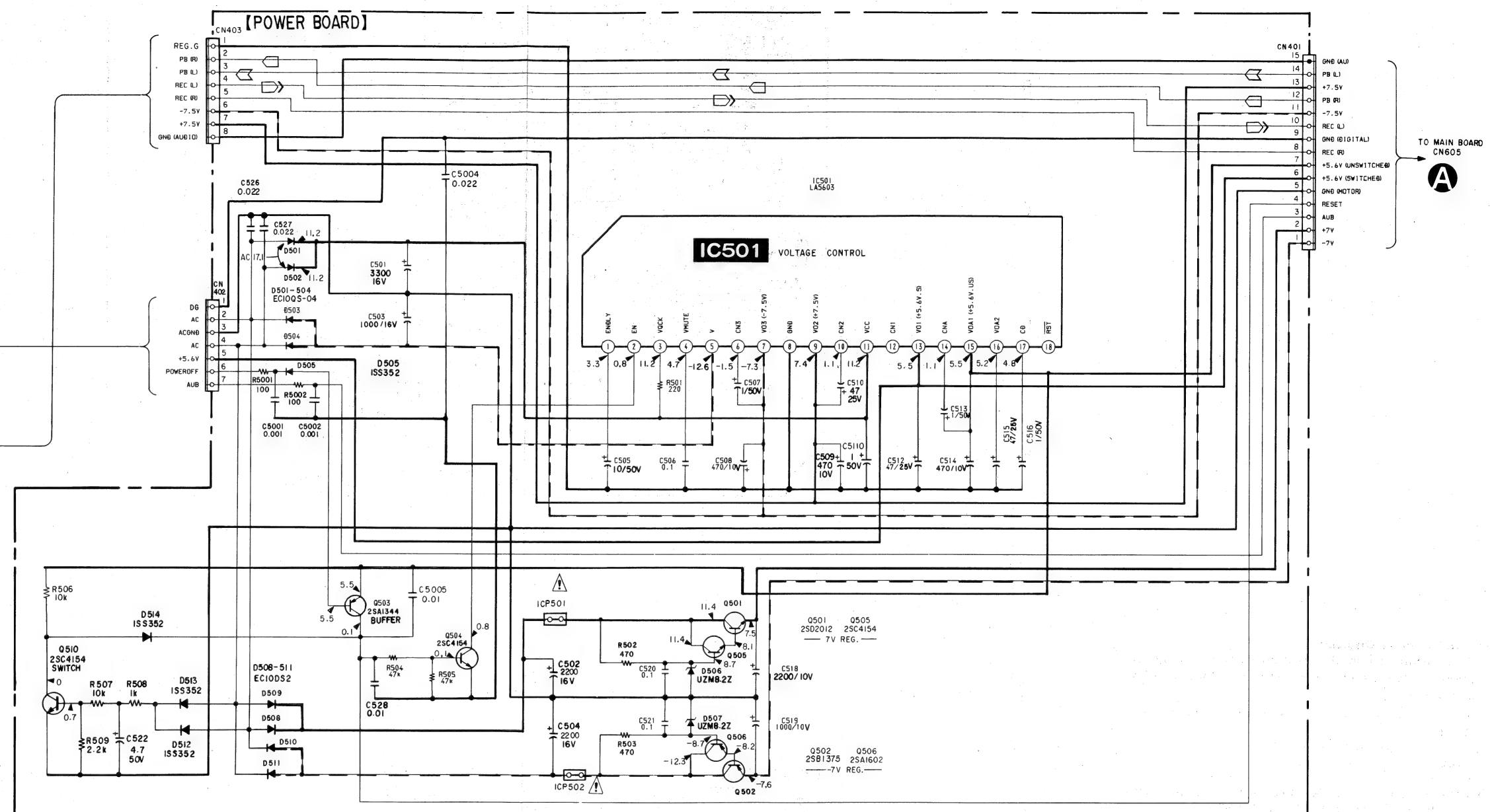
Note on Printed Wiring Board:

- : parts extracted from the component side.
- : Through hole.
- ▨ : Pattern on the side which is seen.
- ▩ : Pattern of the rear side.

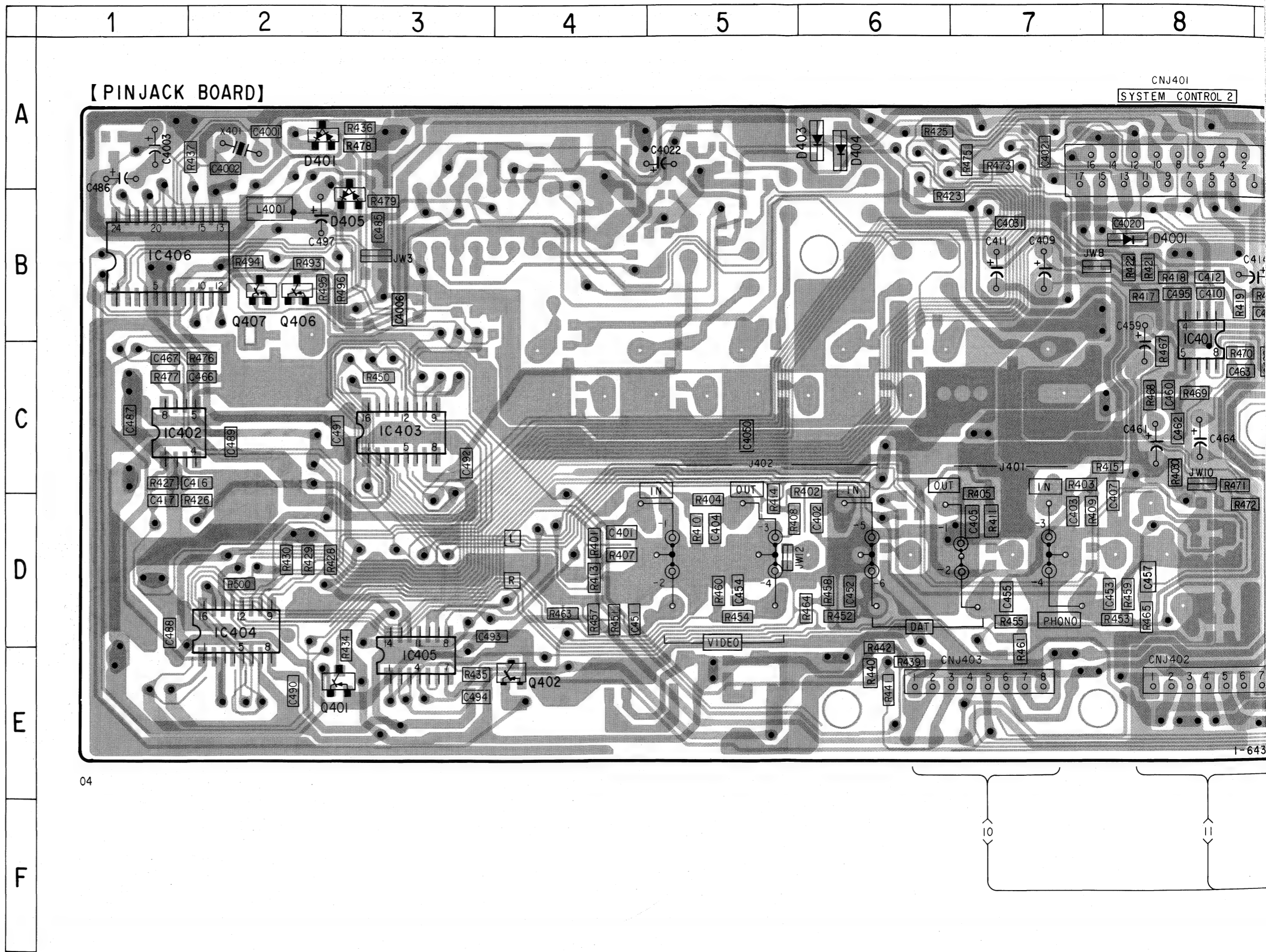
• Refer to page 36 for IC Block Diagrams.

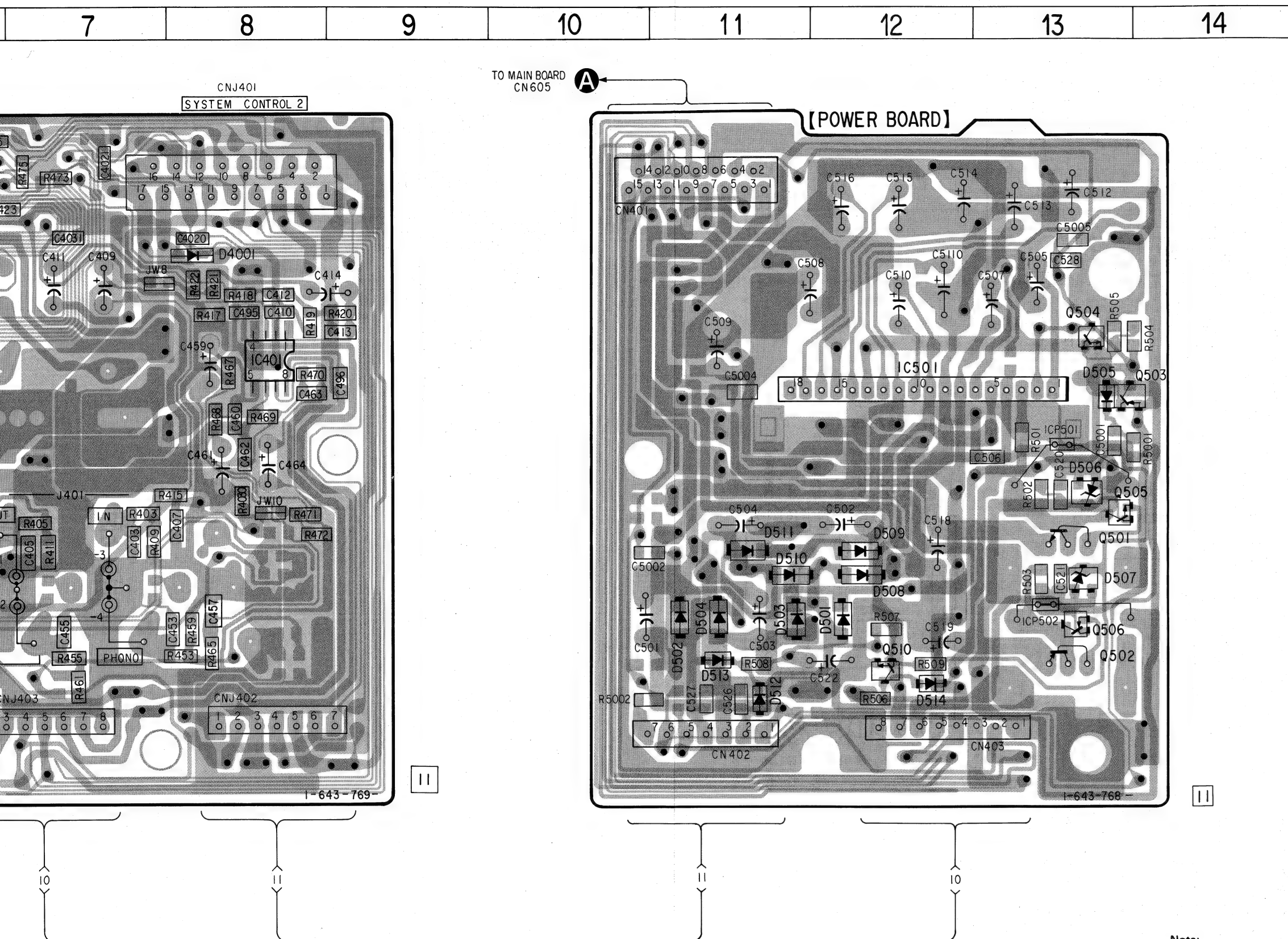


 : REC (DECK A)
 : REC (DECK B)



5-8. PRINTED WIRING BOARDS —PIN JACK SECTION— • Refer to page 14 for Semiconductor Lead Layouts.





- **Semiconductor Location**

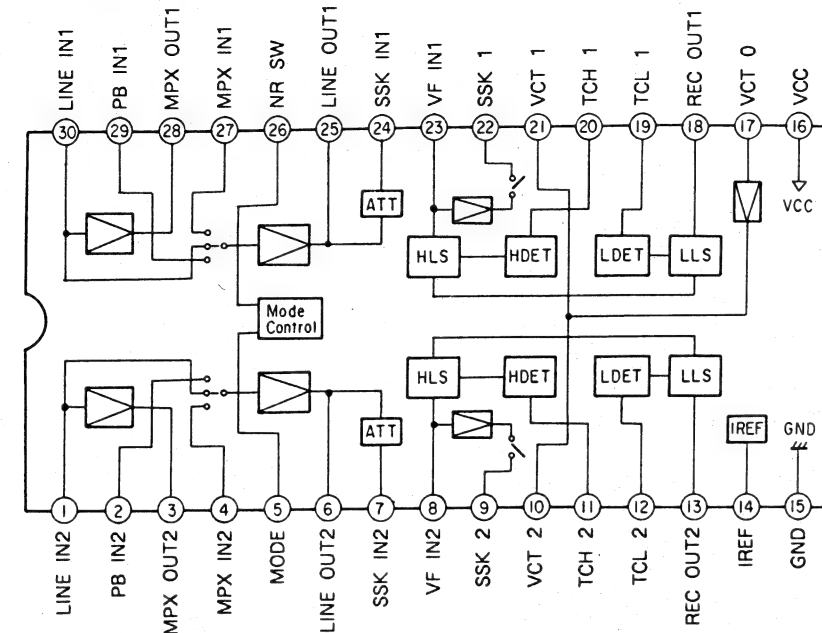
Ref. No.	Location
D401	A-2
D403	A-6
D404	A-6
D405	B-3
D501	D-12
D502	D-11
D503	D-11
D504	D-11
D505	C-13
D506	C-13
D507	D-13
D508	D-12
D509	D-12
D510	D-11
D511	D-11
D512	E-11
D513	D-11
D514	E-12
D4001	B-8
IC401	B-8
IC402	C-1
IC403	C-3
IC404	D-2
IC405	E-3
IC406	B-1
IC501	C-12
Q401	E-2
Q402	E-4
Q406	B-2
Q407	B-2
Q501	D-13
Q502	D-13
Q503	C-13
Q504	B-13
Q505	C-13
Q506	D-13
Q510	D-12

Note:

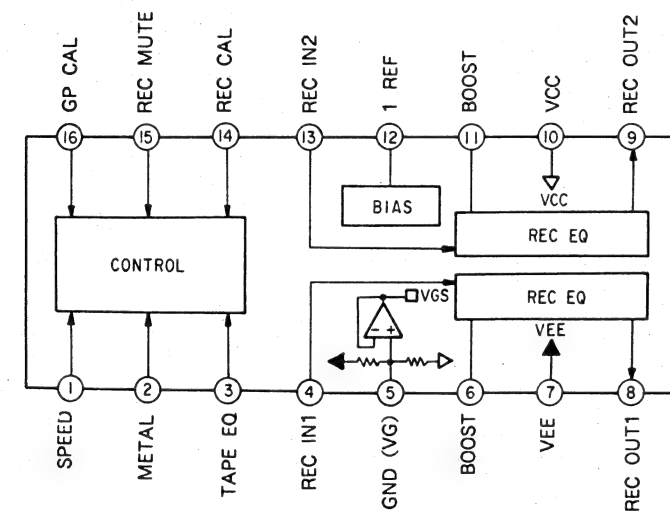
- ○ — : parts extracted from the component side.
- ● : Through hole.
- [diagonal lines] : Pattern on the side which is seen.
- [cross-hatch] : Pattern of the rear side.

• IC Block Diagrams

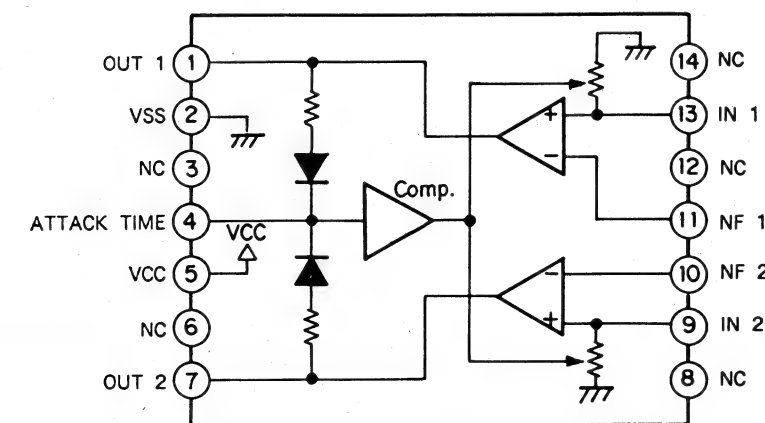
IC102 CXA1331M



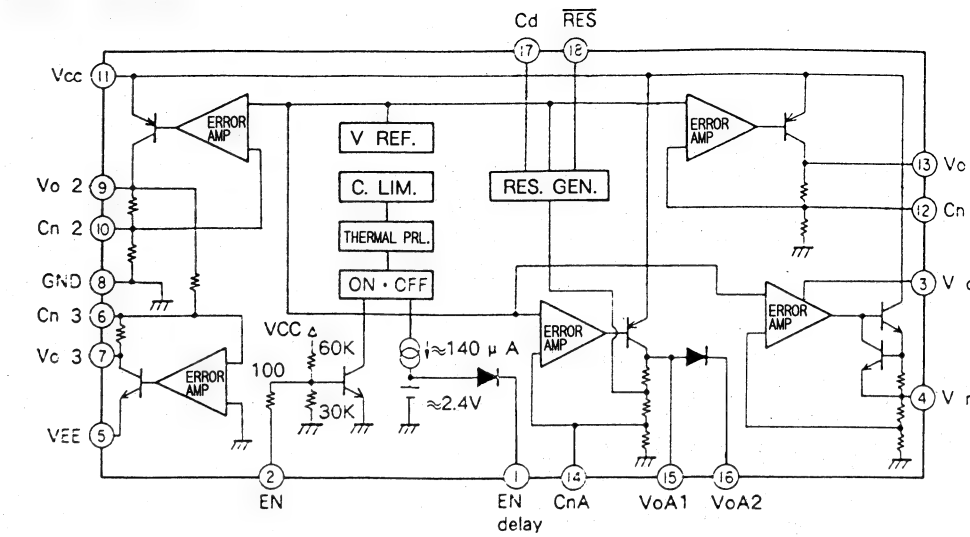
IC103 CXA1578M



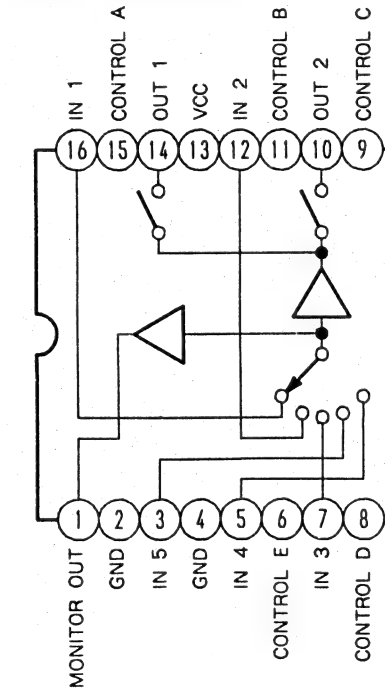
IC106 BA3308F



IC501 LA5603-S



IC407 BA7625



SECTION 6 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -XX and -X mean standardized parts, so they may have some difference from the original one.

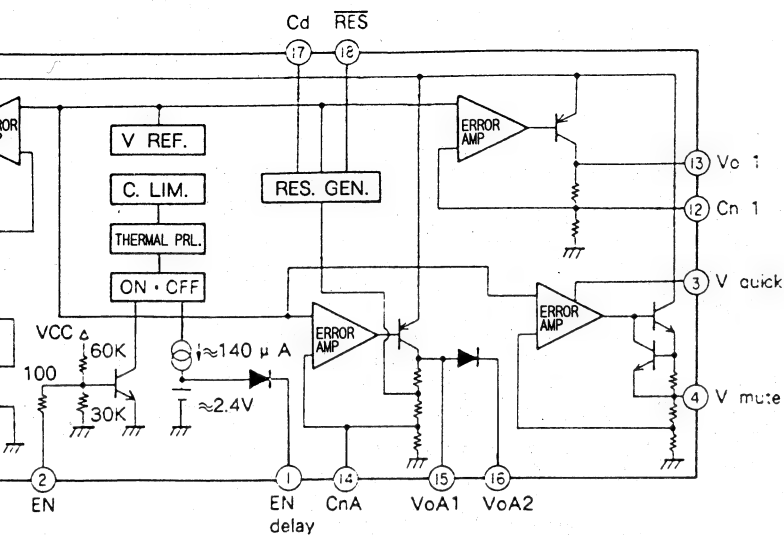
- Color Indication of Appearance Parts

Example :

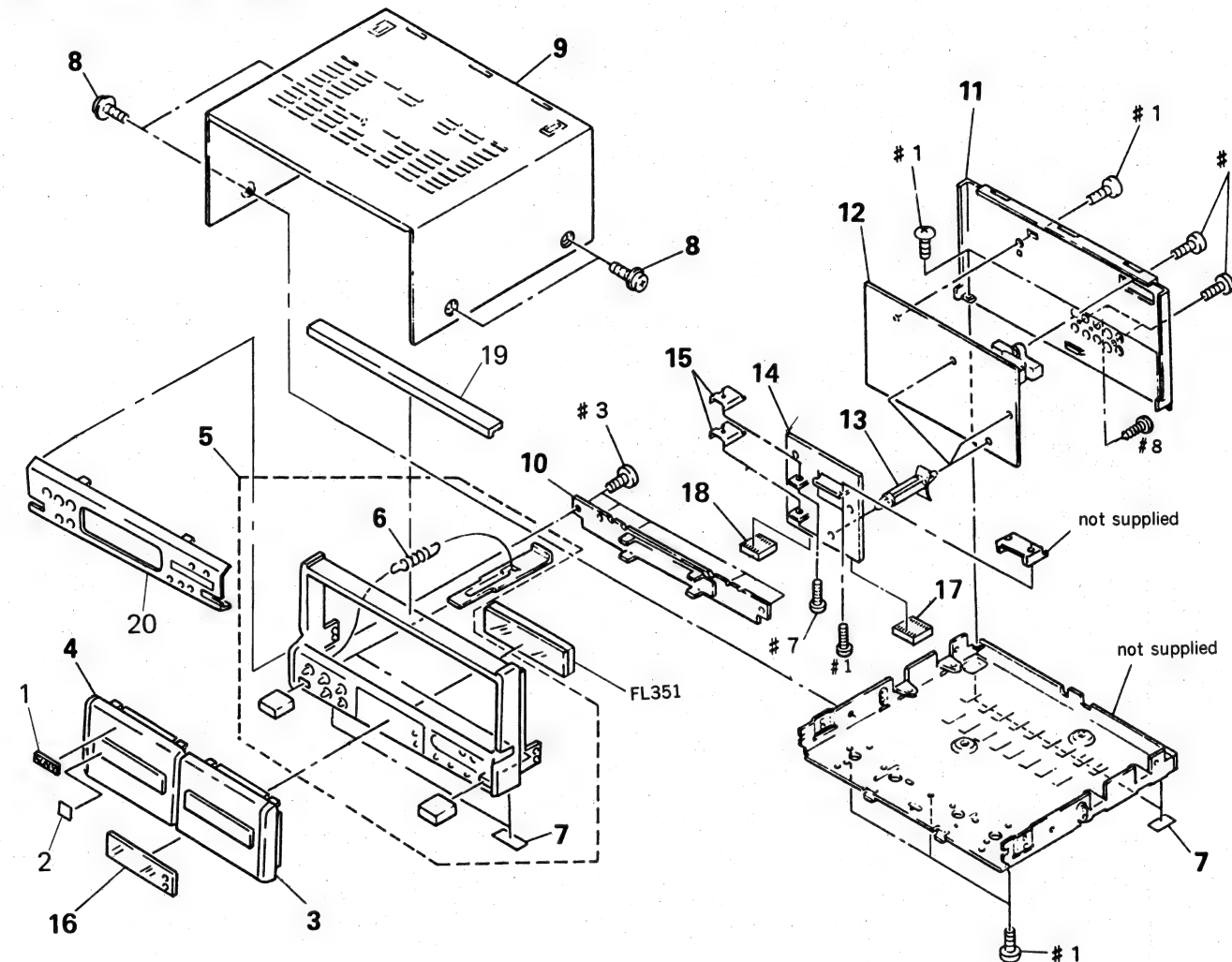
KNOB, BALANCE (WHITE)... (RED)

Parts Color	Cabinet's Color
Black	Black
White	White
Gray	Gray
Blue	Blue
Green	Green
Yellow	Yellow
Orange	Orange
Red	Red
Pink	Pink
Purple	Purple
Brown	Brown
Gold	Gold
Silver	Silver
Black	Black
White	White
Gray	Gray
Blue	Blue
Green	Green
Yellow	Yellow
Orange	Orange
Red	Red
Pink	Pink
Purple	Purple
Brown	Brown
Gold	Gold
Silver	Silver

- Hardware (# mark) list is given in the last of this parts list.



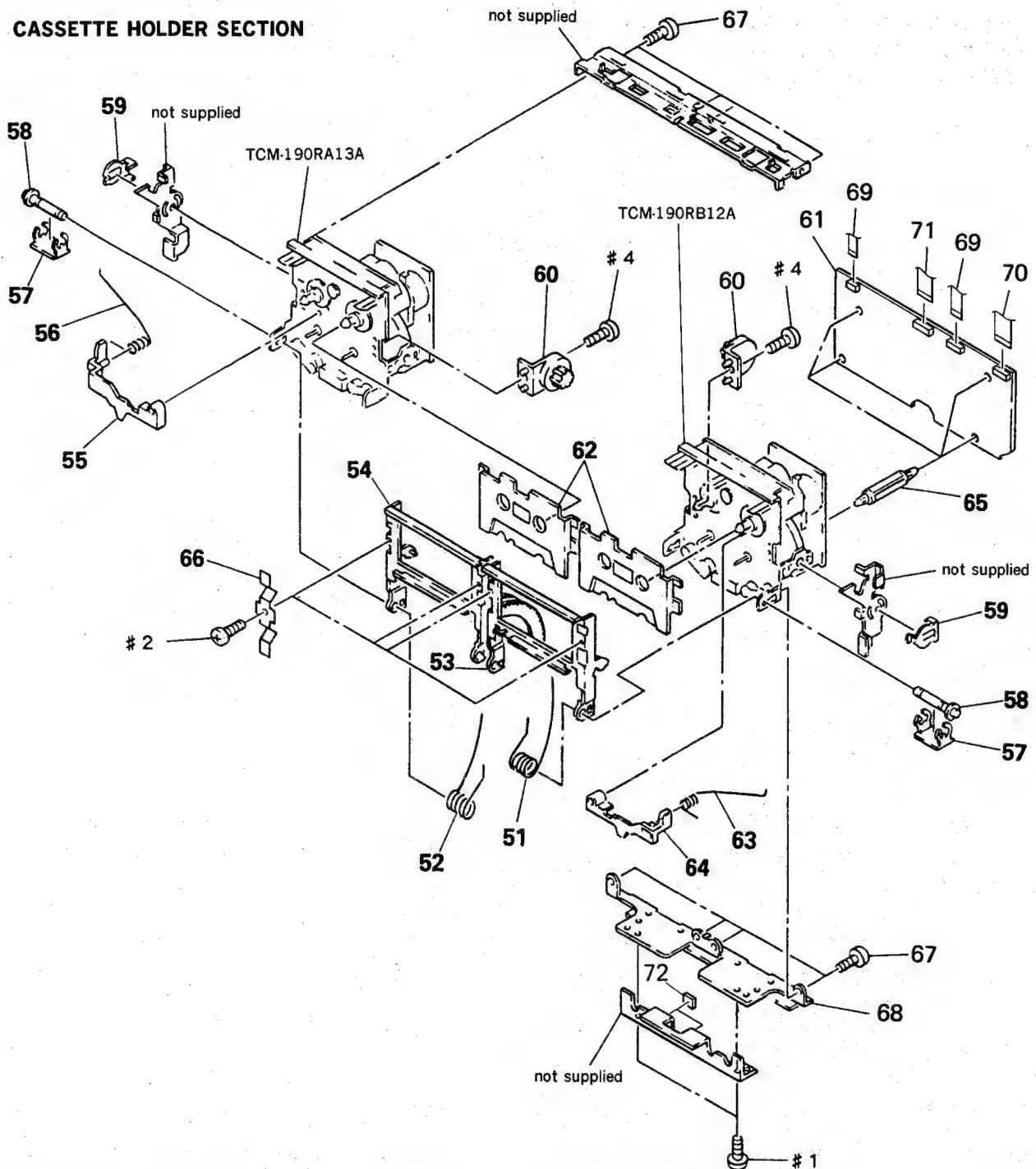
6-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	4-942-636-01	EMBLEM (NO. 3. 5), SONY	
* 2	3-703-713-41	STICKER, SONY SYMBOL (10)	
3	X-3363-046-1	LID (B) ASSY, CASSETTE	
4	X-3363-140-1	LID (A) ASSY, CASSETTE	
5	X-3364-835-2	PANEL (/H) ASSY, FRONT	
6	3-567-110-00	SPRING, TENSION	
7	4-930-336-21	FOOT (FELT)	
8	3-363-099-01	SCREW (CASE +3X8 TP2)	
9	4-932-841-01	CASE	
* 10	A-2006-692-A	PANEL BOARD, COMPLETE	
* 11	3-374-471-81	PANEL, BACK (EXCEPT Germany)	
* 11	3-374-471-91	PANEL, BACK (Germany)	

Ref. No.	Part No.	Description	Remark
* 12	A-2006-730-A	PIN JACK BOARD, COMPLETE	
* 13	3-703-353-02	SUPPORT, PC BOARD	
* 14	A-2006-733-A	POWER BOARD, COMPLETE	
* 15	3-309-144-21	HEAT SINK	
16	X-3362-924-1	WINDOW (PANEL) ASSY	
* 17	1-573-188-11	CONNECTOR, BRIDGE 7P	
* 18	1-573-389-11	COONECTOR, BRIDGE 8P	
19	3-367-893-01	PLATE (TOP), ORNAMENTAL	
20	3-377-931-11	PLATE (PANEL), ORNAMENTAL	
FL351	1-519-708-11	INDICATOR TUBE, FLUORESCENT	

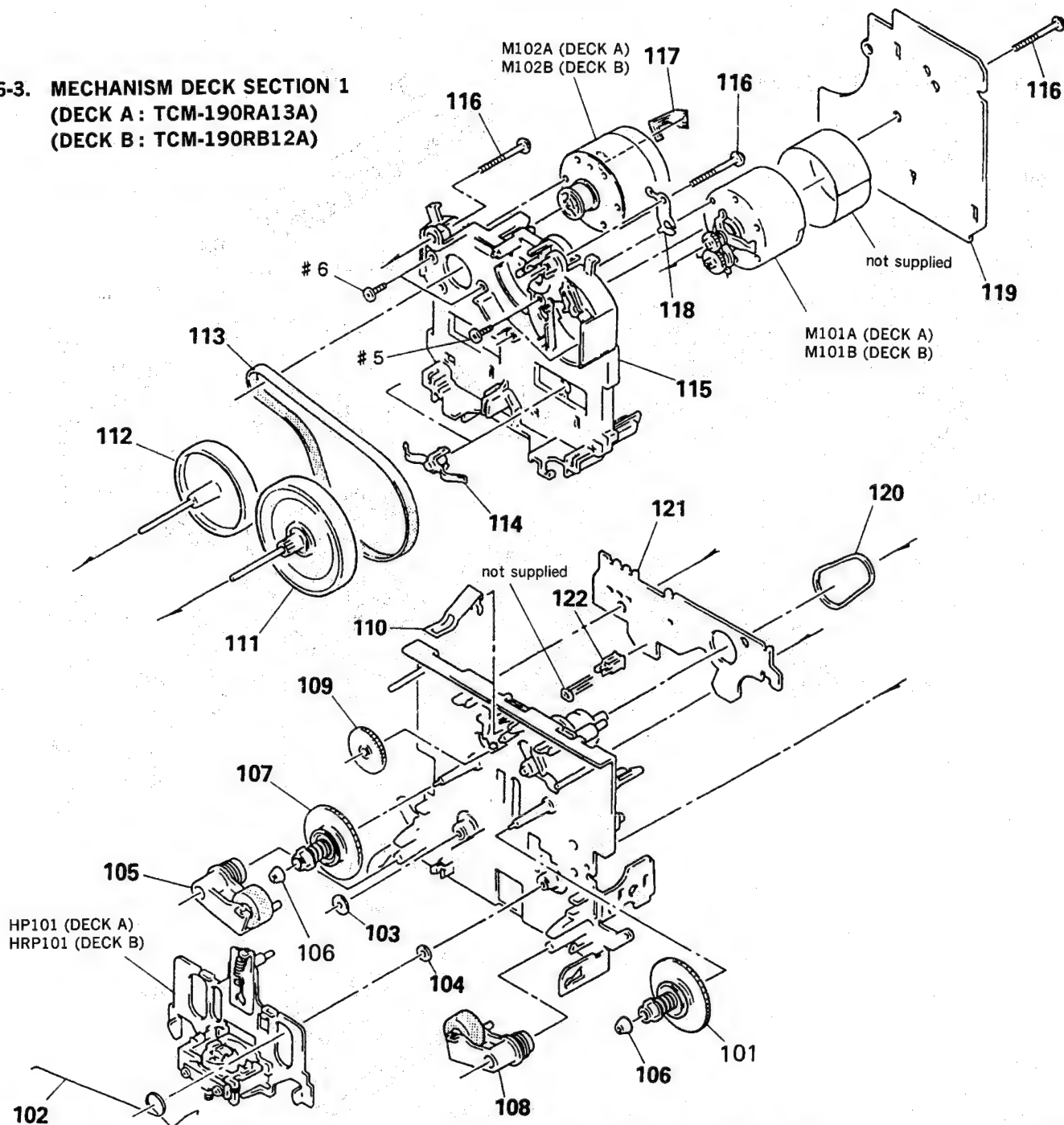
6-2. CASSETTE HOLDER SECTION



Ref. No.	Part No.	Description	Remark
51	3-354-960-01	SPRING (LOADING R), TORSION	
52	3-354-959-01	SPRING (LOADING L), TORSION	
53	X-3362-856-1	HOLDER (R) ASSY, CASSETTE	
54	X-3362-857-1	HOLDER (L) ASSY, CASSETTE	
55	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
56	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
57	3-367-720-01	RING (W), RETAINING	
58	3-367-721-01	SHAFT (FULCRUM SHAFT)	
59	3-354-957-01	JOINT (LOCK LEVER)	
60	3-354-963-01	DAMPER	
* 61	A-2006-708-A	MAIN BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
62	3-367-711-01	RETAINER, CASSETTE	
63	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
64	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
* 65	3-682-419-21	HOLDER, P.C.B	
66	3-340-137-01	SPRING, CASSETTE RETAINER	
67	4-951-620-01	SCREW (2.6X8), +BVTP	
* 68	3-367-724-01	JOINT (LOWER)	
69	1-590-902-11	WIRE, FLAT TYPE (9 CORE)	
70	1-590-903-11	WIRE, FLAT TYPE (15 CORE)	
71	1-590-904-11	WIRE, FLAT TYPE (12 CORE)	
* 72	3-563-504-01	PLATE, ADJUSTMENT	

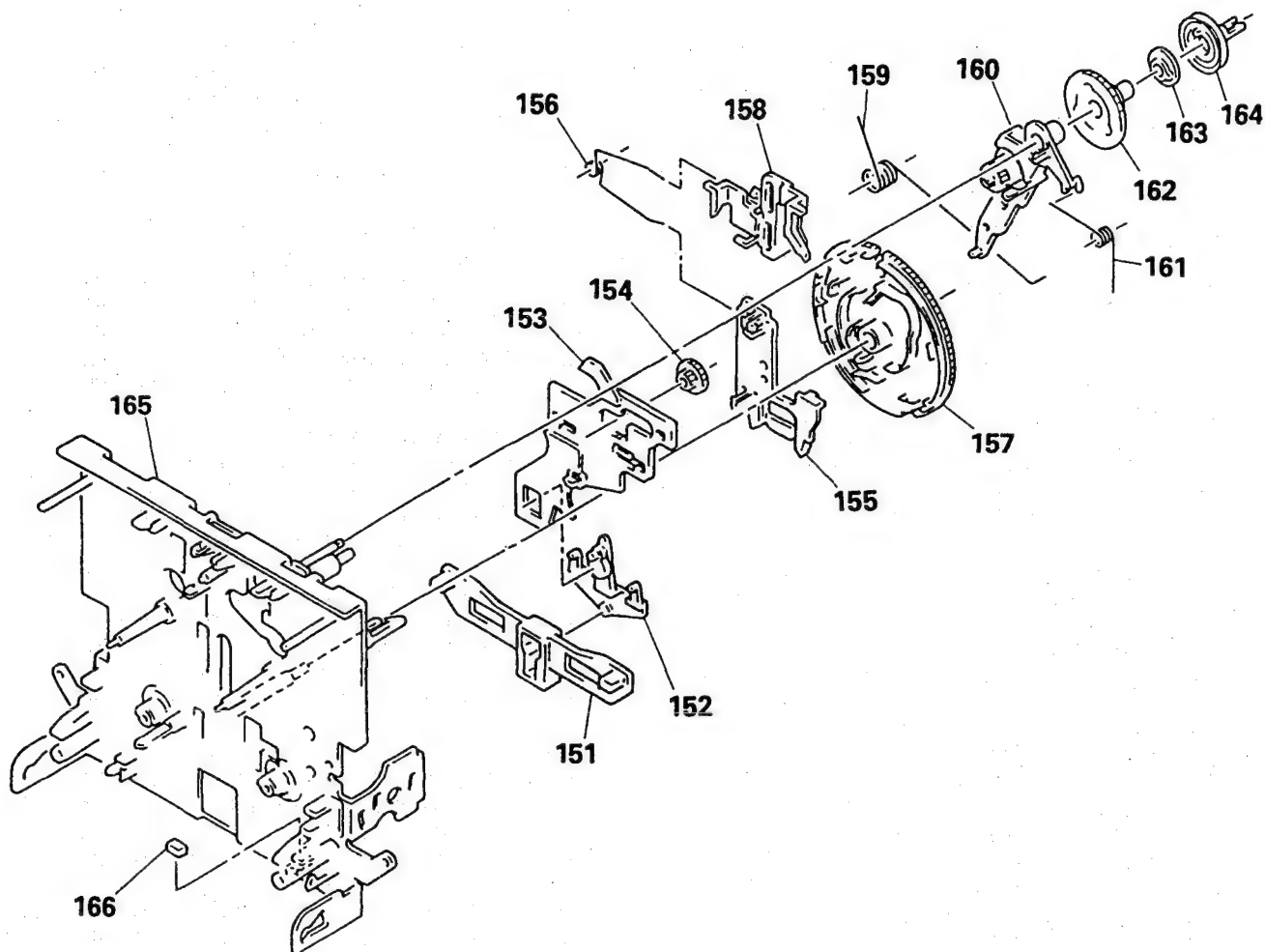
6-3. MECHANISM DECK SECTION 1
(DECK A: TCM-190RA13A)
(DECK B: TCM-190RB12A)



Ref. No.	Part No.	Description	Remark
101	X-3359-404-1	TABLE ASSY, REEL	
102	3-359-455-01	SPRING, TORSION	
103	3-356-714-01	WASHER	
104	3-356-713-01	WASHER	
105	X-3359-409-1	LEVER (PINCH LEVER REV) ASSY	
106	3-362-308-01	CAP (REEL)	
107	X-3362-078-1	TABLE ASSY (B), REEL	
108	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY	
109	3-359-424-01	GEAR (REV GEAR)	
110	3-359-430-01	SPRING (CASSETTE RETAINER), LEAF	
111	X-3364-554-1	FLYWHEEL (FWD) ASSY	
112	X-3359-410-1	FLYWHEEL (REV) ASSY	
113	3-359-417-01	BELT (FLAT), CAPSTAN	
114	3-575-321-00	RETAINER, THRUST, CAPSTAN	
* 115	3-359-436-01	BASE (THRUST RETAINER), FITTING	

Ref. No.	Part No.	Description	Remark
116	3-359-414-01	SCREW (+PTPWH 2X23)	
117	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
118	3-359-450-01	PLATE, GROUND	
* 119	A-2006-399-A	MD-A BOARD, COMPLETE	
* 119	A-2006-401-A	MD-B HX PRO BOARD, COMPLETE	
120	3-359-466-01	BELT (FR), SQUARE	
* 121	1-634-841-14	SW-A BOARD (DECK A)	
* 121	1-634-841-14	SW-B BOARD (DECK B)	
122	3-343-419-01	HOLDER (S SENSOR A)	
HP101	A-2003-868-A	BASE ASSY, HEAD (DECK A)	
HRP101	A-2003-838-A	BASE ASSY, HEAD (DECK B)	
M101A	X-3363-501-1	MOTOR ASSY, REEL (DECK A)	
M101B	X-3363-501-1	MOTOR ASSY, REEL (DECK B)	
M102A	X-3359-417-1	MOTOR ASSY, CAPSTAN (DECK A)	
M102B	X-3359-417-1	MOTOR ASSY, CAPSTAN (DECK B)	

6-4. MECHANISM DECK SECTION 2
(DECK A: TCM-190RA13A)
(DECK B: TCM-190RB12A)



Ref. No.	Part No.	Description	Remark
* 151	3-359-425-01	SLIDER (REVERSE SLIDER)	
152	3-359-426-01	LEVER (REVERSE LEVER)	
* 153	3-359-415-01	SLIDER (TRIGGER SLIDER)	
154	3-359-448-01	GEAR (TRIGGER)	
* 155	3-359-427-01	SLIDER (LEVERSE SLIDER)	
156	3-359-454-01	SPRING, TORSION	
157	3-359-420-01	GEAR (CAM GEAR)	
158	3-359-429-01	SLIDER (BRAKE PLATE)	

Ref. No.	Part No.	Description	Remark
159	3-359-456-01	SPRING (TRIGGER SPRING), TORSION	
160	X-3359-405-1	LEVER (FR ARM) ASSY	
161	3-359-453-01	SPRING (FR ARM), TORSION	
162	3-359-419-01	GEAR (FR GEAR)	
163	3-359-421-01	CLUTCH (REEL DISK)	
164	3-359-418-01	PULLEY (FR PULLEY)	
165	X-3363-790-1	CHASSIN ASSY, MECHANICAL	
166	3-359-469-01	SPACER	

MAIN

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A.. uPA...: μ PA..
uPB...: μ PB.. uPC...: μ PC.. uPD...: μ PD..
- CAPACITORS
uF: μ F
- COILS
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-2006-708-A	MAIN BOARD, COMPLETE		C604	1-164-346-11	CERAMIC CHIP 1uF	16V
		*****		C605	1-164-346-11	CERAMIC CHIP 1uF	16V
		< CAPACITOR >		C606	1-164-346-11	CERAMIC CHIP 1uF	16V
C101	1-136-158-00	FILM 0.027uF 5%	50V	C607	1-164-346-11	CERAMIC CHIP 1uF	16V
C102	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V	C608	1-124-257-00	ELECT 2.2uF 20%	50V
C103	1-164-182-11	CERAMIC CHIP 0.0033uF 10%	50V	C609	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C104	1-106-351-00	MYLAR 2200PF 5%	200V	C610	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C105	1-106-351-00	MYLAR 2200PF 5%	200V	C611	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C106	1-164-346-11	CERAMIC CHIP 1uF	16V	C612	1-124-257-00	ELECT 2.2uF 20%	50V
C107	1-136-174-00	FILM 0.56uF 5%	50V	C615	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C108	1-136-171-00	FILM 0.33uF 5%	50V	C616	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C109	1-164-346-11	CERAMIC CHIP 1uF	16V	C617	1-124-472-11	ELECT 470uF 20%	10V
C110	1-163-117-00	CERAMIC CHIP 100PF 5%	50V	C618	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C111	1-164-005-11	CERAMIC CHIP 0.47uF	25V	C619	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C112	1-164-346-11	CERAMIC CHIP 1uF	16V	C620	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C113	1-163-117-00	CERAMIC CHIP 100PF 5%	50V	C621	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C114	1-164-346-11	CERAMIC CHIP 1uF	16V	C622	1-124-472-11	ELECT 470uF 20%	10V
C115	1-164-505-11	CERAMIC CHIP 2.2uF	16V	C623	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C116	1-163-117-00	CERAMIC CHIP 100PF 5%	50V	C624	1-124-472-11	ELECT 470uF 20%	10V
C201	1-136-158-00	FILM 0.027uF 5%	50V	C625	1-126-059-11	ELECT 10uF 20%	50V
C202	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V	C626	1-126-059-11	ELECT 10uF 20%	50V
C203	1-164-182-11	CERAMIC CHIP 0.0033uF 10%	50V	C629	1-126-157-11	ELECT 10uF 20%	16V
C204	1-106-351-00	MYLAR 2200PF 5%	200V	C632	1-136-594-11	FILM 0.018uF 5%	100V
C205	1-106-351-00	MYLAR 2200PF 5%	200V	C633	1-124-465-00	ELECT 0.47uF 20%	50V
C206	1-164-346-11	CERAMIC CHIP 1uF	16V	C639	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C207	1-136-174-00	FILM 0.56uF 5%	50V	C862	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C208	1-136-171-00	FILM 0.33uF 5%	50V	C6008	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C209	1-164-346-11	CERAMIC CHIP 1uF	16V	C6009	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C210	1-163-117-00	CERAMIC CHIP 100PF 5%	50V	C6010	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C211	1-164-005-11	CERAMIC CHIP 0.47uF	25V	C6011	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C212	1-164-346-11	CERAMIC CHIP 1uF	16V	C6012	1-163-129-00	CERAMIC CHIP 330PF 5%	50V
C213	1-163-117-00	CERAMIC CHIP 100PF 5%	50V	C6013	1-126-023-11	ELECT 100uF 20%	16V
C214	1-164-346-11	CERAMIC CHIP 1uF	16V	C6020	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C215	1-164-505-11	CERAMIC CHIP 2.2uF	16V	C6021	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C216	1-163-117-00	CERAMIC CHIP 100PF 5%	50V	C6022	1-126-163-11	ELECT 4.7uF 20%	50V
C601	1-164-346-11	CERAMIC CHIP 1uF	16V	C6026	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C602	1-164-346-11	CERAMIC CHIP 1uF	16V	C6027	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C603	1-164-346-11	CERAMIC CHIP 1uF	16V	C6029	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
				C6030	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
				C6031	1-163-038-00	CERAMIC CHIP 0.1uF	25V

Ref. No.	Part No.	Description	Remark
C6035	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C6050	1-126-157-11	ELECT 10uF 20%	16V

< CONNECTOR >

CN601	1-573-101-11	SOCKET, CONNECTOR 9P	
CN602	1-580-783-11	CONNECTOR, BOARD TO BOARD	
CN603	1-573-101-11	SOCKET, CONNECTOR 9P	
CN604	1-580-783-11	CONNECTOR, BOARD TO BOARD	
* CN605	1-568-858-11	SOCKET, CONNECTOR 15P	
CN606	1-568-795-11	SOCKET, CONNECTOR 12P	
CN607	1-580-783-11	CONNECTOR, BOARD TO BOARD	

< DIODE >

D601	8-719-422-91	DIODE MA8091	
D602	8-719-016-74	DIODE 1SS352	
D603	8-719-016-74	DIODE 1SS352	
D604	8-719-210-39	DIODE EC10QS-04	
D605	8-719-016-74	DIODE 1SS352	

D606	8-719-422-46	DIODE MA8056	
D607	8-719-210-33	DIODE EC10DS2	
D608	8-719-210-33	DIODE EC10DS2	
D6010	8-719-016-74	DIODE 1SS352	
D6011	8-719-016-74	DIODE 1SS352	

< IC >

IC101	8-759-300-71	IC HD14053BFP	
IC102	8-752-037-90	IC CXA1331M	
IC103	8-752-055-60	IC CXA1578M	
IC104	8-759-636-55	IC M5218AFP	
IC105	8-759-516-47	IC CD4066BCM	
IC106	8-759-998-71	IC BA3308F	
IC601	8-759-058-40	IC M50944-128FP	
IC602	8-759-636-67	IC M50925-482FP	
IC603	8-759-207-05	IC TA7272P	
IC604	8-759-636-55	IC M5218AFP	
IC605	8-759-516-41	IC CD4052BCM	
IC6001	8-759-634-43	IC M51953BFP	

< COIL >

L601	1-410-761-11	INDUCTOR 0.68mH	
L6001	1-410-482-31	INDUCTOR 100uH	
L6002	1-410-381-11	INDUCTOR CHIP 10uH	

< TRANSISTOR >

Q101	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q102	8-729-113-40	TRANSISTOR FA1A4Z-L68	
Q201	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q202	8-729-113-40	TRANSISTOR FA1A4Z-L68	
Q601	8-729-805-65	TRANSISTOR 2SA1344	

Ref. No.	Part No.	Description	Remark
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Q602	8-729-805-65	TRANSISTOR 2SA1344	
Q603	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q604	8-729-805-65	TRANSISTOR 2SA1344	
Q605	8-729-805-69	TRANSISTOR 2SA1341	
Q606	8-729-805-45	TRANSISTOR 2SC3395	

Q607	8-729-805-65	TRANSISTOR 2SA1344	
Q608	8-729-805-65	TRANSISTOR 2SA1344	
Q609	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q611	8-729-805-65	TRANSISTOR 2SA1344	
Q612	8-729-113-13	TRANSISTOR FA1A4M-L33	

Q613	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q616	8-729-804-41	TRANSISTOR 2SB1122-S	
Q617	8-729-804-41	TRANSISTOR 2SB1122-S	
Q619	8-729-808-01	TRANSISTOR 2SD1622-S	
Q620	8-729-808-01	TRANSISTOR 2SD1622-S	

Q6005	8-729-113-13	TRANSISTOR FA1A4M-L33	
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< RESISTOR >

R101	1-216-089-00	METAL CHIP 47K 5%	1/10W
R102	1-216-089-00	METAL CHIP 47K 5%	1/10W
R103	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R104	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R105	1-216-105-00	METAL CHIP 220K 5%	1/10W

R106	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R107	1-216-082-00	METAL GLAZE 24K 5%	1/10W
R108	1-216-043-00	METAL CHIP 560 5%	1/10W
R109	1-216-073-00	METAL CHIP 10K 5%	1/10W
R110	1-216-057-00	METAL CHIP 2.2K 5%	1/10W

R111	1-216-097-00	METAL CHIP 100K 5%	1/10W
R112	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R113	1-216-089-00	METAL CHIP 47K 5%	1/10W
R114	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R115	1-216-105-00	METAL CHIP 220K 5%	1/10W

R116	1-216-085-00	METAL CHIP 33K 5%	1/10W
R117	1-216-049-00	METAL CHIP 1K 5%	1/10W
R118	1-216-105-00	METAL CHIP 220K 5%	1/10W
R119	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R120	1-216-093-00	METAL CHIP 68K 5%	1/10W

R121	1-216-295-00	METAL CHIP 0 5%	1/10W
R201	1-216-089-00	METAL CHIP 47K 5%	1/10W
R202	1-216-089-00	METAL CHIP 47K 5%	1/10W
R203	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R204	1-216-057-00	METAL CHIP 2.2K 5%	1/10W

R205	1-216-105-00	METAL CHIP 220K 5%	1/10W
R206	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R207	1-216-082-00	METAL GLAZE 24K 5%	1/10W
R208	1-216-043-00	METAL CHIP 560 5%	1/10W
R209	1-216-073-00	METAL CHIP 10K 5%	1/10W

MAIN

Ref. No.	Part No.	Description	Remark			
R210	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R211	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R212	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R213	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R214	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R215	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R216	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R217	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R218	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R219	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R220	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R221	1-216-295-00	METAL CHIP	0	5%	1/10W	
R601	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R602	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R603	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R605	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R606	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R607	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R608	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R609	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R610	1-216-084-00	METAL CHIP	30K	5%	1/10W	
R611	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R612	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R615	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R616	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R617	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R618	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R619	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R620	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R623	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R624	1-216-295-00	METAL CHIP	0	5%	1/10W	
R625	1-216-295-00	METAL CHIP	0	5%	1/10W	
R626	1-216-295-00	METAL CHIP	0	5%	1/10W	
R628	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R629	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R630	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R631	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R634	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R635	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R636	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R637	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R638	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R639	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R640	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R641	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R642	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R643	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R644	1-216-025-00	METAL CHIP	100	5%	1/10W	

Ref. No.	Part No.	Description	Remark			
R645	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R646	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R647	1-216-025-00	METAL CHIP	100	5%	1/10W	
R648	1-216-025-00	METAL CHIP	100	5%	1/10W	
R649	1-216-025-00	METAL CHIP	100	5%	1/10W	
R650	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R651	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R652	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R653	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R654	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R655	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R656	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R661	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R662	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R663	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R664	1-216-045-00	METAL CHIP	680	5%	1/10W	
R665	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R666	1-216-045-00	METAL CHIP	680	5%	1/10W	
R667	1-216-025-00	METAL CHIP	100	5%	1/10W	
R668	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R669	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R670	1-216-084-00	METAL CHIP	30K	5%	1/10W	
R671	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R672	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R673	1-216-080-00	METAL CHIP	20K	5%	1/10W	
R674	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R675	1-216-080-00	METAL CHIP	20K	5%	1/10W	
R676	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R677	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R678	1-216-084-00	METAL CHIP	30K	5%	1/10W	
R679	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R680	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R681	1-216-090-00	METAL CHIP	51K	5%	1/10W	
R682	1-216-025-00	METAL CHIP	100	5%	1/10W	
R686	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R687	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R690	1-216-025-00	METAL CHIP	100	5%	1/10W	
R691	1-216-057-00	METAL CHIP	2. 2K	5%	1/10W	
R692	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R693	1-216-025-00	METAL CHIP	100	5%	1/10W	
R695	1-216-065-00	METAL CHIP	4. 7K	5%	1/10W	
R696	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R697	1-216-070-00	METAL CHIP	7. 5K	5%	1/10W	
R698	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R699	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R700	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R6004	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R6005	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R6010	1-216-049-00	METAL CHIP	1K	5%	1/10W	

MAIN

MD-A

MD-B HX PRO

Ref.No.	Part No.	Description	Remark		
R6011	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6012	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6013	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6014	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6015	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6016	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6017	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6018	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6050	1-216-025-00	METAL CHIP	100	5%	1/10W
△R6051	1-212-974-00	FUSIBLE	47	5%	1/2W F
R6060	1-216-073-00	METAL CHIP	10K	5%	1/10W
R6070	1-216-073-00	METAL CHIP	10K	5%	1/10W
R6080	1-216-097-00	METAL CHIP	100K	5%	1/10W
< VARIABLE RESISTOR >					
RV101	1-241-136-11	RES, ADJ, CARBON 10K			
RV201	1-241-136-11	RES, ADJ, CARBON 10K			
< TRANSFORMER >					
T601	1-450-458-11	TRANSFORMER, DC-DC CONVERTER			
< TEST PIN >					
* TP601	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P			
* TP6001	1-564-517-11	PLUG, CONNECTOR 2P			
< VIBRATOR >					
X601	1-577-358-21	VIBRATOR, CERAMIC (4MHz)			

*	A-2006-399-A	MD-A BOARD, COMPLETE			

< CAPACITOR >					
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C71	1-164-346-11	CERAMIC CHIP	1uF		16V
< CONNECTOR >					
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNJ72	1-580-411-11	SOCKET, CONNECTOR 4P			

Ref.No.	Part No.	Description	Remark		
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
< IC >					
IC31A	8-759-106-02	IC uPC4570G2			
< JUMPER RESISTOR >					
JW1	1-216-295-00	METAL CHIP	0	5%	1/10W
JW51	1-216-296-00	METAL CHIP	0	5%	1/8W
JW52	1-216-296-00	METAL CHIP	0	5%	1/8W
JW53	1-216-296-00	METAL CHIP	0	5%	1/8W
JW54	1-216-296-00	METAL CHIP	0	5%	1/8W
< TRANSISTOR >					
Q71A	8-729-602-36	TRANSISTOR 2SA1602-F			
< RESISTOR >					
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-00	METAL CHIP	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-00	METAL CHIP	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W
< VARIABLE RESISTOR >					
RV11A	1-241-627-11	RES, ADJ, CARBON 1K			
RV21A	1-241-627-11	RES, ADJ, CARBON 1K			
RV71A	1-241-630-11	RES, ADJ, CARBON 10K			
RV72A	1-241-630-11	RES, ADJ, CARBON 10K			

*	A-2006-401-A	MD-B HX PRO BOARD, COMPLETE			

< CAPACITOR >					
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

MD-B HX PRO

Ref. No.	Part No.	Description	Remark
C23	1-124-234-00	ELECT 22uF 20% 16V	
C28	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C31	1-124-234-00	ELECT 22uF 20% 16V	
C32	1-124-234-00	ELECT 22uF 20% 16V	
C33	1-124-234-00	ELECT 22uF 20% 16V	
C51	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C52	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V	
C53	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C54	1-136-601-11	FILM 0.01uF 5% 630V	
C56	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C57	1-164-346-11	CERAMIC CHIP 1uF 16V	
C71	1-164-346-11	CERAMIC CHIP 1uF 16V	
C80	1-124-234-00	ELECT 22uF 20% 16V	
C81	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C82	1-136-157-00	FILM 0.022uF 5% 50V	
C83	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C84	1-136-478-11	FILM 470PF 5% 630V	
C85	1-136-433-11	FILM 100PF 5% 630V	
C86	1-163-143-00	CERAMIC CHIP 0.0012uF 5% 50V	
C87	1-136-273-91	FILM 75PF 5% 630V	
C88	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C89	1-124-234-00	ELECT 22uF 20% 16V	
C90	1-107-045-00	MICA 3.9PF 500V	
C91	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C92	1-136-157-00	FILM 0.022uF 5% 50V	
C93	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C94	1-136-478-11	FILM 470PF 5% 630V	
C95	1-136-433-11	FILM 100PF 5% 630V	
C96	1-163-143-00	CERAMIC CHIP 0.0012uF 5% 50V	
C97	1-136-273-91	FILM 75PF 5% 630V	
C98	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C99	1-164-005-11	CERAMIC CHIP 0.47uF 25V	

< CONNECTOR >

* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P
* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P
* CNP72	1-580-411-11	SOCKET, CONNECTOR 4P

< DIODE >

D31	8-719-016-74	DIODE 1SS352
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< IC >

IC31B	8-759-106-02	IC uPC4570G2
IC81C	8-759-106-56	IC uPC1297CA

Ref. No.	Part No.	Description	Remark
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< COIL >

L81	1-410-780-11	INDUCTOR 27mH
L91	1-410-780-11	INDUCTOR 27mH

< TRANSISTOR >

Q51	8-729-808-01	TRANSISTOR 2SD1622-S
Q52	8-729-808-01	TRANSISTOR 2SD1622-S
Q53	8-729-808-01	TRANSISTOR 2SD1622-S
Q71B	8-729-216-22	TRANSISTOR 2SA1162-C

< RESISTOR >

R11	1-216-099-00	METAL CHIP 120K 5% 1/10W
R12	1-216-025-00	METAL CHIP 100 5% 1/10W
R13	1-216-100-00	METAL GLAZE 130K 5% 1/10W
R14	1-216-067-00	METAL CHIP 5.6K 5% 1/10W
R21	1-216-099-00	METAL CHIP 120K 5% 1/10W
R22	1-216-025-00	METAL CHIP 100 5% 1/10W
R23	1-216-100-00	METAL GLAZE 130K 5% 1/10W
R24	1-216-067-00	METAL CHIP 5.6K 5% 1/10W
R31	1-216-033-00	METAL CHIP 220 5% 1/10W
R32	1-216-033-00	METAL CHIP 220 5% 1/10W
R51	1-216-097-00	METAL CHIP 100K 5% 1/10W
R52	1-216-097-00	METAL CHIP 100K 5% 1/10W
R53	1-216-073-00	METAL CHIP 10K 5% 1/10W
R54	1-216-309-00	METAL CHIP 5.6 5% 1/10W
R55	1-216-309-00	METAL CHIP 5.6 5% 1/10W
R57	1-216-298-00	METAL CHIP 2.2 5% 1/10W
R71	1-216-082-00	METAL GLAZE 24K 5% 1/10W
R72	1-216-081-00	METAL CHIP 22K 5% 1/10W
R73	1-216-089-00	METAL CHIP 47K 5% 1/10W
R74	1-216-089-00	METAL CHIP 47K 5% 1/10W
R81	1-216-073-00	METAL CHIP 10K 5% 1/10W
R82	1-216-085-00	METAL CHIP 33K 5% 1/10W
R83	1-216-001-00	METAL CHIP 10 5% 1/10W
R84	1-216-101-00	METAL CHIP 150K 5% 1/10W
R85	1-216-075-00	METAL CHIP 12K 5% 1/10W
R91	1-216-073-00	METAL CHIP 10K 5% 1/10W
R92	1-216-085-00	METAL CHIP 33K 5% 1/10W
R93	1-216-001-00	METAL CHIP 10 5% 1/10W
R94	1-216-101-00	METAL CHIP 150K 5% 1/10W
R95	1-216-075-00	METAL CHIP 12K 5% 1/10W

< VARIABLE RESISTOR >

RV11B	1-241-627-11	RES, ADJ, CARBON 1K
RV21B	1-241-627-11	RES, ADJ, CARBON 1K
RV71B	1-241-630-11	RES, ADJ, CARBON 10K
RV72B	1-241-630-11	RES, ADJ, CARBON 10K
RV81	1-241-122-11	RES, ADJ, CARBON 22K

MD-B HX PRO

PANEL

PIN JACK

Ref.No.	Part No.	Description	Remark
RV91	1-241-122-11	RES, ADJ, CARBON 22K	
		< RELAY >	
RY31	1-515-726-11	RELAY	
		< TRANSFORMER >	
T51	1-406-417-11	COIL, BIAS OSCILLATION	
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR	
T91	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR	
		< TEST PIN >	
* TP81	1-568-449-11	HOUSING, CONNECTOR(PC BOARD) 3P	

*	A-2006-692-A	PANEL BOARD, COMPLETE	

*	3-367-839-01	HOLDER, FL TUBE	
	3-377-932-01	SPRING, GROUND	
		< CAPACITOR >	
C351	1-126-163-11	ELECT 4.7uF 20% 50V	
C352	1-124-638-11	ELECT 22uF 20% 10V	
C353	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C354	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
		< CONNECTOR >	
CN351	1-580-883-21	SOCKET, CONNECTOR (SMT) 12P	
		< DIODE >	
D301	8-719-312-30	LED SEL4226R-CD (DUBBING MODE)	
D302	8-719-312-30	LED SEL4226R-CD (CD SYNCHRO)	
		< FLUORESCENT INDICATOR >	
FL351	1-519-708-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC351	8-759-323-35	IC HD-614023-FA93	
		< RESISTOR >	
R351	1-216-029-00	METAL CHIP 150 5% 1/10W	
R352	1-216-033-00	METAL CHIP 220 5% 1/10W	
R353	1-216-037-00	METAL CHIP 330 5% 1/10W	
R354	1-216-041-00	METAL CHIP 470 5% 1/10W	
R355	1-216-045-00	METAL CHIP 680 5% 1/10W	
R356	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R357	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R359	1-216-045-00	METAL CHIP 680 5% 1/10W	

Ref.No.	Part No.	Description	Remark
R362	1-216-041-00	METAL CHIP 470 5% 1/10W	
R363	1-216-045-00	METAL CHIP 680 5% 1/10W	
R364	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R365	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R366	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R367	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R368	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R369	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R372	1-216-041-00	METAL CHIP 470 5% 1/10W	
R374	1-216-037-00	METAL CHIP 330 5% 1/10W	
R375	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R376	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R377	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R378	1-216-025-00	METAL CHIP 100 5% 1/10W	
R379	1-216-025-00	METAL CHIP 100 5% 1/10W	
R380	1-216-025-00	METAL CHIP 100 5% 1/10W	
R381	1-216-025-00	METAL CHIP 100 5% 1/10W	
		< SWITCH >	
S901	1-554-303-21	SWITCH, TACTILE (CD SYNCHRO)	
S902	1-554-303-21	SWITCH, TACTILE (◀)	
S903	1-554-303-21	SWITCH, TACTILE (▶)	
S904	1-554-303-21	SWITCH, TACTILE (● REC)	
S905	1-692-064-11	SWITCH, TACTIL (DECK A)	
S906	1-692-064-11	SWITCH, TACTIL (DECK B)	
S907	1-554-303-21	SWITCH, TACTILE (COUNTER RESET)	
S908	1-554-303-21	SWITCH, TACTILE (DOLBY NR)	
S909	1-554-303-21	SWITCH, TACTILE (DUBBING MODE)	
S910	1-554-303-21	SWITCH, TACTILE (■)	
S911	1-554-303-21	SWITCH, TACTILE (▷)	
S912	1-554-303-21	SWITCH, TACTILE (<)	
S913	1-554-303-21	SWITCH, TACTILE (PAUSE)	
S914	1-554-303-21	SWITCH, TACTILE (○ MUTE)	
S915	1-554-303-21	SWITCH, TACTILE (DIRECTION MODE)	
		< VIBRATOR >	
X951	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	

*	A-2006-730-A	PIN JACK BOARD, COMPLETE	

		< CAPACITOR >	
C401	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C402	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C403	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C404	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C405	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C407	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	

PIN JACK

Ref.No.	Part No.	Description	Remark
C409	1-124-465-00	ELECT 0.47uF 20% 50V	
C410	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C411	1-126-163-11	ELECT 4.7uF 20% 50V	
C412	1-163-018-00	CERAMIC CHIP 0.0056uF 5% 50V	
C413	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
C414	1-124-257-00	ELECT 2.2uF 20% 50V	
C416	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C417	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C451	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C452	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C453	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C454	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C455	1-163-003-11	CERAMIC CHIP 330PF 10% 50V	
C457	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C459	1-124-465-00	ELECT 0.47uF 20% 50V	
C460	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C461	1-126-163-11	ELECT 4.7uF 20% 50V	
C462	1-163-018-00	CERAMIC CHIP 0.0056uF 5% 50V	
C463	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
C464	1-124-257-00	ELECT 2.2uF 20% 50V	
C466	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C467	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C485	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C486	1-126-157-11	ELECT 10uF 20% 16V	
C487	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C488	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C489	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C490	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C491	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C492	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C493	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C494	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C495	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C496	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C497	1-126-301-11	ELECT 1uF 20% 50V	
C4001	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C4002	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C4003	1-124-589-11	ELECT 47uF 20% 16V	
C4006	1-101-005-00	CERAMIC 22000PF 50V	
C4020	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C4021	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C4022	1-124-589-11	ELECT 47uF 20% 16V	
C4030	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C4031	1-163-133-00	CERAMIC CHIP 470PF 5% 50V	
C4050	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	

< CONNECTOR >

- * CNJ401 1-580-740-11 SOCKET, CONNECTOR 17P (SYSTEM CONTROL 2)
 * CNJ402 1-573-187-11 PIN, CONNECTOR (PC BOARD) 7P

Ref.No.	Part No.	Description	Remark
* CNJ403	1-573-388-11	PIN, CONNECTOR (PC BOARD) 8P	
< DIODE >			
D401	8-719-990-36	DIODE DCA010	
D403	8-719-210-33	DIODE EC10DS2	
D404	8-719-210-33	DIODE EC10DS2	
D405	8-719-990-36	DIODE DCA010	
D4001	8-719-016-74	DIODE 1SS352	
< IC >			
IC401	8-759-636-55	IC M5218AFP	
IC402	8-759-636-55	IC M5218AFP	
IC403	8-759-009-05	IC MC14051BF	
IC404	8-759-009-05	IC MC14051BF	
IC405	8-759-516-47	IC CD4066BCM	
IC406	8-759-636-35	IC M50760-315FP	
< JACK >			
J401	1-565-304-11	JACK, PIN 4P (DAT OUT, PHONO IN)	
* J402	1-569-812-11	JACK, PIN 6P (DAT IN, VIDEO IN/OUT)	
< JUMPER RESISTOR >			
JW3	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW8	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW10	1-216-295-00	METAL CHIP 0 5% 1/10W	
JW12	1-216-295-00	METAL CHIP 0 5% 1/10W	
< COIL >			
L4001	1-410-381-11	INDUCTOR CHIP 10uH	
< TRANSISTOR >			
Q401	8-729-805-65	TRANSISTOR 2SA1344	
Q402	8-729-805-65	TRANSISTOR 2SA1344	
Q406	8-729-602-36	TRANSISTOR 2SA1602-F	
Q407	8-729-602-21	TRANSISTOR 2SC4154-F	
< RESISTOR >			
R401	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R402	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R403	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R404	1-216-041-00	METAL CHIP 470 5% 1/10W	
R405	1-216-041-00	METAL CHIP 470 5% 1/10W	
R407	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R408	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R409	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R410	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R411	1-216-115-00	METAL CHIP 560K 5% 1/10W	
R413	1-216-295-00	METAL CHIP 0 5% 1/10W	

PIN JACK

POWER

Ref. No.	Part No.	Description	Remark		
R414	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R415	1-216-049-00	METAL CHIP	1K	5%	1/10W
R417	1-216-089-00	METAL CHIP	47K	5%	1/10W
R418	1-216-049-00	METAL CHIP	1K	5%	1/10W
R419	1-216-115-00	METAL CHIP	560K	5%	1/10W
R420	1-216-089-00	METAL CHIP	47K	5%	1/10W
R421	1-216-001-00	METAL CHIP	10	5%	1/10W
R422	1-216-075-00	METAL CHIP	12K	5%	1/10W
R423	1-216-041-00	METAL CHIP	470	5%	1/10W
R425	1-216-025-00	METAL CHIP	100	5%	1/10W
R426	1-216-089-00	METAL CHIP	47K	5%	1/10W
R427	1-216-089-00	METAL CHIP	47K	5%	1/10W
R428	1-216-089-00	METAL CHIP	47K	5%	1/10W
R429	1-216-089-00	METAL CHIP	47K	5%	1/10W
R430	1-216-089-00	METAL CHIP	47K	5%	1/10W
R434	1-216-073-00	METAL CHIP	10K	5%	1/10W
R435	1-216-073-00	METAL CHIP	10K	5%	1/10W
R436	1-216-089-00	METAL CHIP	47K	5%	1/10W
R437	1-216-121-00	METAL CHIP	1M	5%	1/10W
R439	1-216-295-00	METAL CHIP	0	5%	1/10W
R440	1-216-089-00	METAL CHIP	47K	5%	1/10W
R441	1-216-295-00	METAL CHIP	0	5%	1/10W
R442	1-216-089-00	METAL CHIP	47K	5%	1/10W
R450	1-216-081-00	METAL CHIP	22K	5%	1/10W
R451	1-216-049-00	METAL CHIP	1K	5%	1/10W
R452	1-216-049-00	METAL CHIP	1K	5%	1/10W
R453	1-216-049-00	METAL CHIP	1K	5%	1/10W
R454	1-216-041-00	METAL CHIP	470	5%	1/10W
R455	1-216-041-00	METAL CHIP	470	5%	1/10W
R457	1-216-115-00	METAL CHIP	560K	5%	1/10W
R458	1-216-115-00	METAL CHIP	560K	5%	1/10W
R459	1-216-089-00	METAL CHIP	47K	5%	1/10W
R460	1-216-115-00	METAL CHIP	560K	5%	1/10W
R461	1-216-115-00	METAL CHIP	560K	5%	1/10W
R463	1-216-295-00	METAL CHIP	0	5%	1/10W
R464	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R465	1-216-049-00	METAL CHIP	1K	5%	1/10W
R467	1-216-089-00	METAL CHIP	47K	5%	1/10W
R468	1-216-049-00	METAL CHIP	1K	5%	1/10W
R469	1-216-115-00	METAL CHIP	560K	5%	1/10W
R470	1-216-089-00	METAL CHIP	47K	5%	1/10W
R471	1-216-001-00	METAL CHIP	10	5%	1/10W
R472	1-216-075-00	METAL CHIP	12K	5%	1/10W
R473	1-216-041-00	METAL CHIP	470	5%	1/10W
R475	1-216-025-00	METAL CHIP	100	5%	1/10W
R476	1-216-089-00	METAL CHIP	47K	5%	1/10W
R477	1-216-089-00	METAL CHIP	47K	5%	1/10W
R478	1-216-089-00	METAL CHIP	47K	5%	1/10W
R479	1-216-089-00	METAL CHIP	47K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R493	1-216-073-00	METAL CHIP	10K	5%	1/10W
R494	1-216-073-00	METAL CHIP	10K	5%	1/10W
R495	1-216-081-00	METAL CHIP	22K	5%	1/10W
R496	1-216-081-00	METAL CHIP	22K	5%	1/10W
R500	1-216-081-00	METAL CHIP	22K	5%	1/10W

< VIBRATOR >

X401 1-577-077-11 OSCILLATOR, CERAMIC (400kHz)

* A-2006-733-A POWER BOARD, COMPLETE

* 3-309-144-21 HEAT SINK

7-685-646-79 SCREW +BVTP 3X8 TYPE2 N-S

7-682-547-04 SCREW +BVTT 3X6 (S)

< CAPACITOR >

C501	1-126-936-11	ELECT	3300uF	20%	16V
C502	1-124-556-11	ELECT	2200uF	20%	16V
C503	1-124-360-00	ELECT	1000uF	20%	16V
C504	1-124-556-11	ELECT	2200uF	20%	16V
C505	1-124-907-11	ELECT	10uF	20%	50V
C506	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C507	1-124-903-11	ELECT	1uF	20%	50V
C508	1-124-472-11	ELECT	470uF	20%	10V
C509	1-124-472-11	ELECT	470uF	20%	10V
C510	1-124-477-11	ELECT	47uF	20%	25V
C512	1-124-477-11	ELECT	47uF	20%	25V
C513	1-124-903-11	ELECT	1uF	20%	50V
C514	1-124-472-11	ELECT	470uF	20%	10V
C515	1-124-477-11	ELECT	47uF	20%	25V
C516	1-124-903-11	ELECT	1uF	20%	50V
C518	1-126-927-11	ELECT	2200uF	20%	10V
C519	1-124-473-11	ELECT	1000uF	20%	10V
C520	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C521	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C522	1-124-927-11	ELECT	4.7uF	20%	100V
C526	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C527	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C528	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C5001	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C5002	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C5004	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C5005	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C5110	1-124-903-11	ELECT	1uF	20%	50V

< CONNECTOR >

* CN401 1-568-834-11 SOCKET, CONNECTOR 15P

* CN402 1-573-187-11 PIN, CONNECTOR (PC BOARD) 7P

POWER

SW-A

SW-B

Ref.No.	Part No.	Description	Remark
* CN403	1-573-388-11	PIN, CONNECTOR (PC BOARD) 8P	
		< DIODE >	
D501	8-719-210-39	DIODE EC10QS-04	
D502	8-719-210-39	DIODE EC10QS-04	
D503	8-719-210-39	DIODE EC10QS-04	
D504	8-719-210-39	DIODE EC10QS-04	
D505	8-719-016-74	DIODE 1SS352	
D506	8-719-021-77	DIODE UZM8. 2Z	
D507	8-719-021-77	DIODE UZM8. 2Z	
D508	8-719-210-33	DIODE EC10DS2	
D509	8-719-210-33	DIODE EC10DS2	
D510	8-719-210-33	DIODE EC10DS2	
D511	8-719-210-33	DIODE EC10DS2	
D512	8-719-016-74	DIODE 1SS352	
D513	8-719-016-74	DIODE 1SS352	
D514	8-719-016-74	DIODE 1SS352	
		< IC >	
IC501	8-759-041-09	IC LA5603-S	
		< IC LINK >	
△ICP501	1-532-843-21	LI NK, IC	
△ICP502	1-532-843-21	LI NK, IC	
		< TRANSISTOR >	
Q501	8-729-209-15	TRANSISTOR 2SD2012	
Q502	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q503	8-729-805-65	TRANSISTOR 2SA1344	
Q504	8-729-602-21	TRANSISTOR 2SC4154-F	
Q505	8-729-602-21	TRANSISTOR 2SC4154-F	
Q506	8-729-602-36	TRANSISTOR 2SA1602-F	
Q510	8-729-602-21	TRANSISTOR 2SC4154-F	
		< RESISTOR >	
R501	1-216-033-00	METAL CHIP 220 5% 1/10W	
R502	1-216-041-00	METAL CHIP 470 5% 1/10W	
R503	1-216-041-00	METAL CHIP 470 5% 1/10W	
R504	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R505	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R506	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R507	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R508	1-126-049-00	METAL CHIP 1K 5% 1/10W	
R509	1-216-057-00	METAL CHIP 2. 2K 5% 1/10W	
R5001	1-216-025-00	METAL CHIP 100 5% 1/10W	
R5002	1-216-025-00	METAL CHIP 100 5% 1/10W	

Ref.No.	Part No.	Description	Remark
*	1-634-841-14	SW-A BOARD	

	3-343-419-01	HOLDER (S SENSER A)	
		< CONNECTOR >	
* CNP81	1-568-852-11	SOCKET, CONNECTOR 9P	
		< IC >	
IC81A	8-719-710-03	DI ODE NJL5165K-B	
		< RESISTOR >	
R84	1-249-417-11	CARBON 1K 5% 1/4W	
R85	1-249-408-11	CARBON 180 5% 1/4W	
		< SWITCH >	
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)	
S82	1-571-281-21	SWITCH, LEAF (CrO2 DET)	
S86	1-571-281-21	SWITCH, LEAF (HALF DET)	

*	1-634-841-14	SW-B BOARD	

	3-343-419-01	HOLDER (S SENSER A)	
		< CONNECTOR >	
* CNP81	1-568-852-11	SOCKET, CONNECTOR 9P	
		< IC >	
IC81B	8-719-710-03	DI ODE NJL5165K-B	
		< RESISTOR >	
R81	1-249-414-11	CARBON 560 5% 1/4W	
R82	1-247-818-11	CARBON 300 5% 1/4W	
R83	1-247-834-11	CARBON 1. 3K 5% 1/4W	
R84	1-249-417-11	CARBON 1K 5% 1/4W	
R85	1-249-408-11	CARBON 180 5% 1/4W	
		< SWITCH >	
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)	
S82	1-571-281-21	SWITCH, LEAF. (CrO2)	
S83	1-571-281-21	SWITCH, LEAF (METAL DET)	
S84	1-571-281-21	SWITCH, LEAF (ERASE PROOF SIDE A)	
S85	1-571-281-21	SWITCH, LEAF (ERASE PROOF SIDE B)	
S86	1-571-281-21	SWITCH, LEAF (HALF DET)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
MISCELLANEOUS			

* 17	1-573-188-11	CONNECTOR, BRIDGE 7P	
* 18	1-573-389-11	COONECTOR, BRIDGE 8P	
69	1-590-902-11	WIRE, FLAT TYPE (9 CORE)	
70	1-590-903-11	WIRE, FLAT TYPE (15 CORE)	
71	1-590-904-11	WIRE, FLAT TYPE (12 CORE)	
117	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
HP101	A-2003-868-A	BASE ASSY, HEAD (DECK A)	
HRP101	A-2003-838-A	BASE ASSY, HEAD (DECK B)	
M101A	X-3363-501-1	MOTOR ASSY, REEL (DECK A)	
M101B	X-3363-501-1	MOTOR ASSY, REEL (DECK B)	
M102A	X-3359-417-1	MOTOR ASSY, CAPSTAN (DECK A)	
M102B	X-3359-417-1	MOTOR ASSY, CAPSTAN (DECK B)	

HARDWARE LIST

#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#2	7-621-255-15	SCREW +PTT 2X3 (S)
#3	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S
#4	7-621-770-67	SCREW +PTT 2.6X6 (S)
#5	7-627-556-08	SCREW +P 2.6X2.8
#6	7-621-775-00	SCREW +B 2.6X3
#7	7-682-547-04	SCREW +BVTT 3X6 (S)
#8	7-621-849-00	SCREW, TAPPING